NORITSU

Negative Color Film Processor
QSF-T15
QSF-T15SM
QSF-T15F

Service Manual

[Issued in September, 2006]

– for service personnel only –

1.Cautions for work

2.Replacement and adjustment of parts

3.Mode

4.Troubleshooting

5.Operation sequence

6.Electrical parts

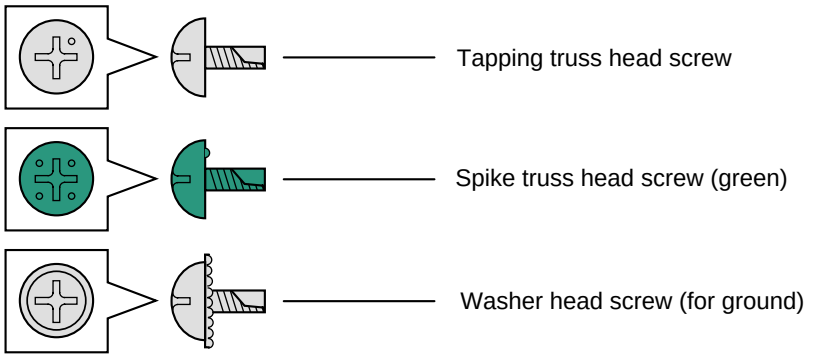
7.Setup for service personnel

8.Appendix

Notes to service personnel

Be sure to read this manual carefully to gain a thorough understanding of the correct procedures before servicing the machine.

This machine uses both tapping truss head screws, spike truss head screws and washer head screw (for ground). When attaching the screws once removed, make sure they are on their original positions. These screws are used for the place where grounding is required.



SCREW

System Program: Ver. 1

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- The contents of this manual are subject to change without notice.
- Illustrations in this manual may vary depending on the model or manufacturing lot.

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Explanation of manual

About the chapters

- 1. Cautions for work
  Contains information on how to achieve safety in service operations.
  Be sure to read these precautions thoroughly and carefully.
- 2. Replacement and adjustment of component parts
  Describes how to remove or replace component parts and units, and how to adjust each part in replacement.
- 3. Mode
  Describes the mode and how to install the programs.
- 4. Troubleshooting
  This chapter explains the corrective action for trouble.
- 5. Operation sequence
  Describes the operation sequence of system.
- 6. Electrical parts
  Describes the PCBs used in this system.
- 7. Setup for service personnel
  Describes the setups performed by the service personnel.
- 8. Wiring diagram
  Wiring diagram

Symbols used in this manual

Definitions of the marks and symbols used in this manual are as follows:

This is called the alert symbol mark.
Text following this mark contains particularly important information concerning safety. Be sure to heed this information.
This mark is used in conjunction with the words **DANGER**, **WARNING** and **CAUTION**, according to the extent of influence (injury) on persons or damage to physical property.

The Important symbol indicates operations or procedures require caution, instructions and supplementary explanations that need to follow.

The pointing finger symbol indicates the manual or section where you can find additional information.

The Note symbol indicates useful information on functions or instructions.

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Description of warning (signal words)

- Signal words identify the level of injuries that can potentially occur.
- The signal words used in this manual and found on labels, **DANGER**, **WARNING** and **CAUTION**, are assigned according to the level of potential risk.
- Warning labels are located at or near the part of the system that pose the indicated danger. If ignored, death or serious injury occurs, or the system breaks down. Be sure to follow the indications in the manuals and on the warning labels.
- The warnings include a signal word, the type and extent of the danger, and information to avoid danger.
- Carefully read and follow the warnings included in this manual and on the warning labels before operating the system.

DANGER

This indicates situations that if not immediately avoided could result in serious injury or death.

WARNING

This indicates situations that if not avoided could result in serious injury or death.

CAUTION

This indicates situations that if not avoided could result in non-life threatening injury. It is also used to indicate situations which may cause damage to physical property.

Example of warning label

Warning (signal word)

Symbol mark (warning indication)

Warning text (warning indication)

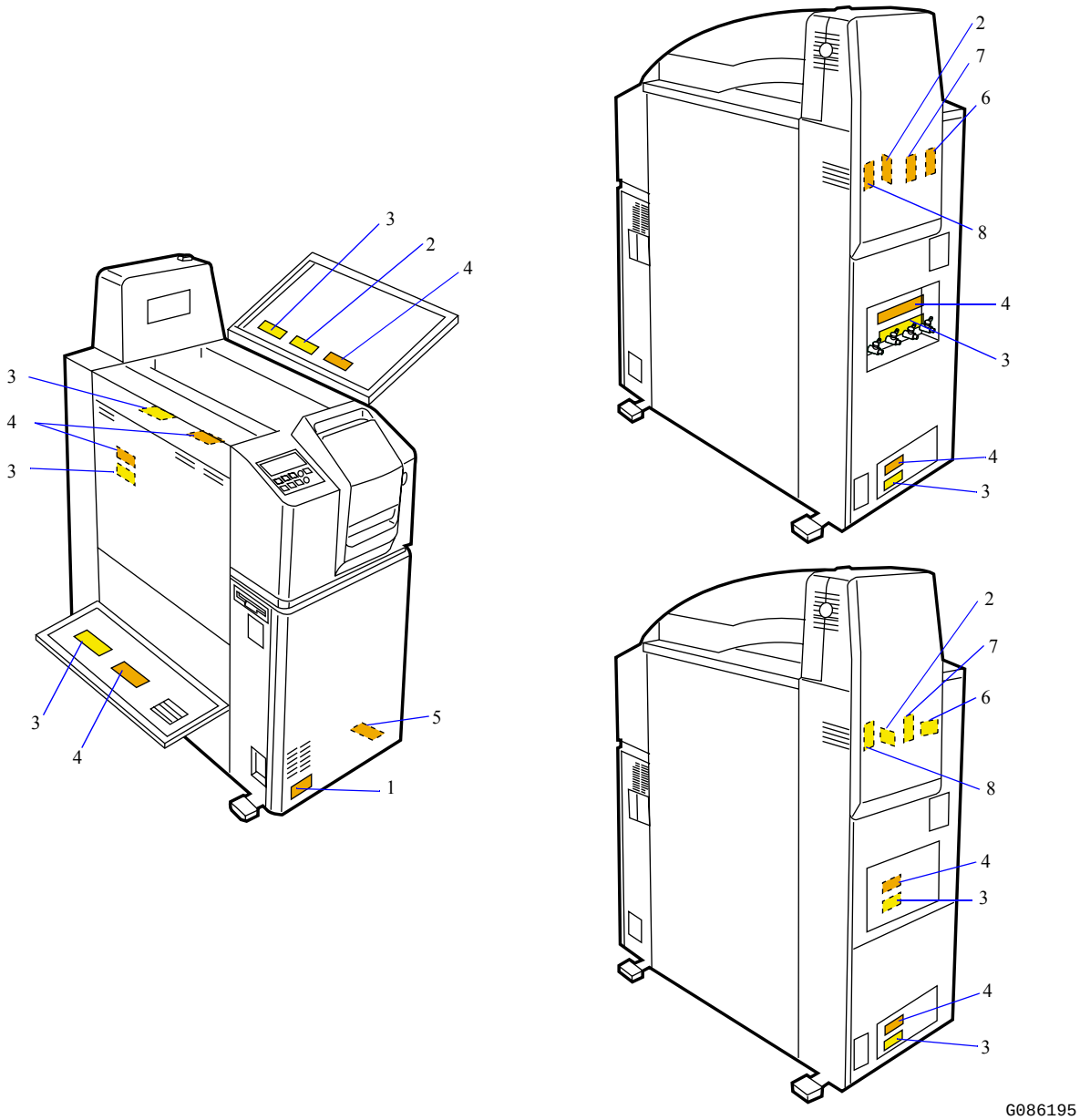
SIGNALWORD

Location of warning labels

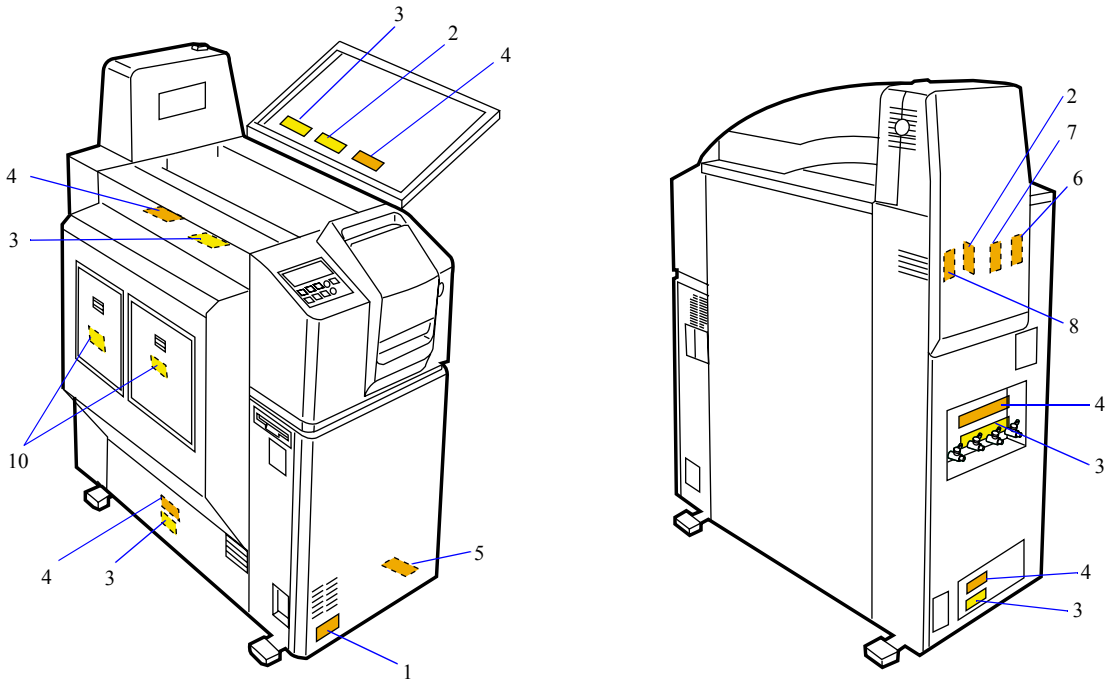
The following shows the locations, types and parts No. of warning labels on this machine. Follow the instructions on the labels carefully in order to operate the machine safely and avoid accidents. Do not remove labels. If a label becomes illegible or comes off completely, contact your place of purchase for label replacement.

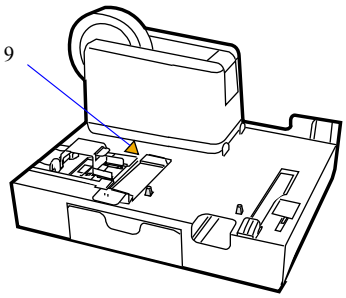
The shape of the machine may somewhat differ.

for standard, SM specification



for F specification





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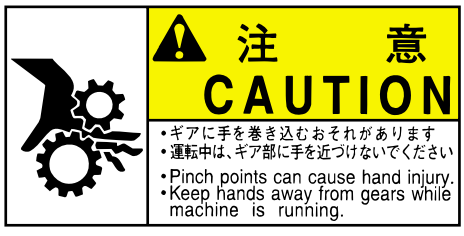
1

A022780-01

2

A022519-01



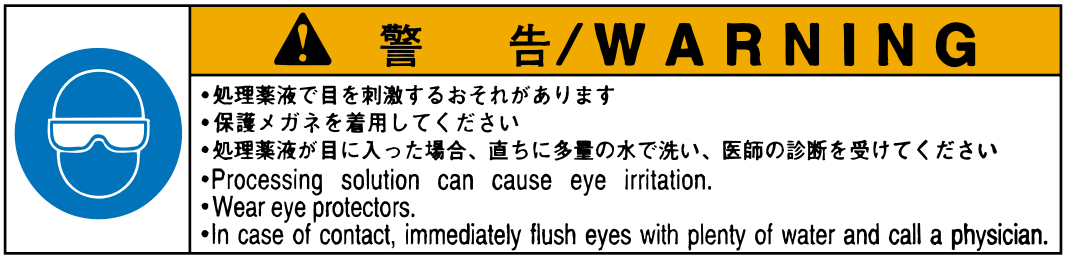
3

A234392-01

注 意 / C A U T I O N
•処理薬液で皮膚を刺激するおそれがあります
•保護手袋を着用してください
•処理薬液に触れた場合、直ちに多量の水で洗い流してください
•Processing solution can cause skin irritation.
•Wear protective gloves.
•In case of contact, immediately flush skin with plenty of water.

4

A234350-01


警　告/WARNING
•処理薬液で目を刺激するおそれがあります
•保護メガネを着用してください
•処理薬液が目に入った場合、直ちに多量の水で洗い、医師の診断を受けてください
•Processing solution can cause eye irritation.
•Wear eye protectors.
•In case of contact, immediately flush eyes with plenty of water and call a physician.

5

A022769-01

6

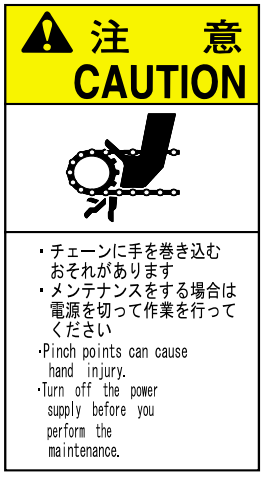
A234343-01

7

A079863-01

8

A079773-01



9

A059883-01

10 A087463-01

CAUTION/注意
When cleaning the cartridge section, always wear eye protection and rubber gloves to prevent eye and skin irritation through contact with chemicals. Should such contact occur, flush the affected area immediately with lots of water.
カートリッジヨット部を清掃する時は、保護メガネと手袋を着用してください。薬に触れると目や皮ふを失調する恐れがあります。皮ふや目に着いた時は、すぐに多量の水で洗ってください。

For safe operation

● General precautions

⚠WARNING

- Prior to any part replacement or mechanical adjustment, be sure to turn off the power supply and disconnect the power code from the electrical outlet.
- Since the work which uses key operations cannot turn off the power supply, be careful enough to check the mechanical operation.

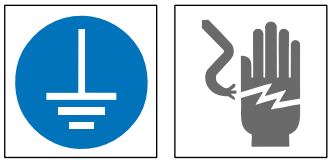
IMPORTANT

- Ground wires are connected to the covers and units of this machine.
  For reassembly, be sure to connect the ground wires as they were.
- Be sure to perform an operation check after replacing or adjusting any parts (or units).

● Precautions against electric shock

⚠WARNING

- If any case you have to take care of wiring for the power supply such as when moving the machine, ask a qualified professional electrician for work. Do not forget to ground the machine.
- Pay attention to avoid shocks when performing troubleshooting, wiring check, or voltage/current measurement.
- When replacing a fuse, be sure to turn off the power supply and disconnect the power cord from the electrical outlet.



● Precautions for movable units

⚠WARNING

- There is a danger of hands being caught by the open/close covers or doors, or by the movable units.
  When opening and closing covers or doors, be sure to hold them firmly.
  When moving a unit manually, hold the specified parts only.
  When working with a unit which automatically moves, or when working around such the units, be sure to turn off the power supply.
  If your hand is caught and you cannot move, immediately call for help to turn off the powoer supply.

● Precautions for operating heating section

⚠WARNING

- If you directly touch them during operation or right after operation, you may get burnt.
  When replacing parts or maintaining, make sure that the temperature is fully lowered.
  Turn off the power supply, and after the temperature is fully lowered, perform the operation.
  If you get burnt, cool the burn with flowing water and contact a physician as soon as possible.

● Precautions for using batteries

⚠CAUTION

- If you replace batteries improperly, it may cause explosion or damage to the machine.
  Use batteries which are specified by the manufacturer or the same types or equivalent as the specified ones.
  Follow the handling instructions by battery manufacturer when you dispose the used batteries.

Countermeasure for static electricity when replacing and maintaining the electronic parts

If an electrically charged human body touches electronic parts such as PCBs, it may adversely affect the electronic parts.
When handling the electronic parts, be sure to use static-dissipative tools as below to prevent the components on the PCB from being damaged due to static electricity.
Also use the static-dissipative tools for maintenance of the digital units or engines.

Static-dissipative tools

Description	Remarks
Portable Static-Dissipative Field Service Kit	Use this kit when replacing or installing/removing the electronic parts from the machine. This kit consists of four items of Static-Dissipative Work Mat, Wrist Strap, Ground Cord, and Alligator Clips.
Static-Dissipative conductive gloves	Use this to prevent that sebum on your hand adheres when you touch a PCB.
Wrist strap	Use this when checking the electronic parts.

⚠CAUTION

- When using the static-dissipative tool, be sure to turn off the circuit breaker of the unit and the main power supply, and wait 10 seconds or more to carry out the operation.

2. Replacement and adjustment of parts

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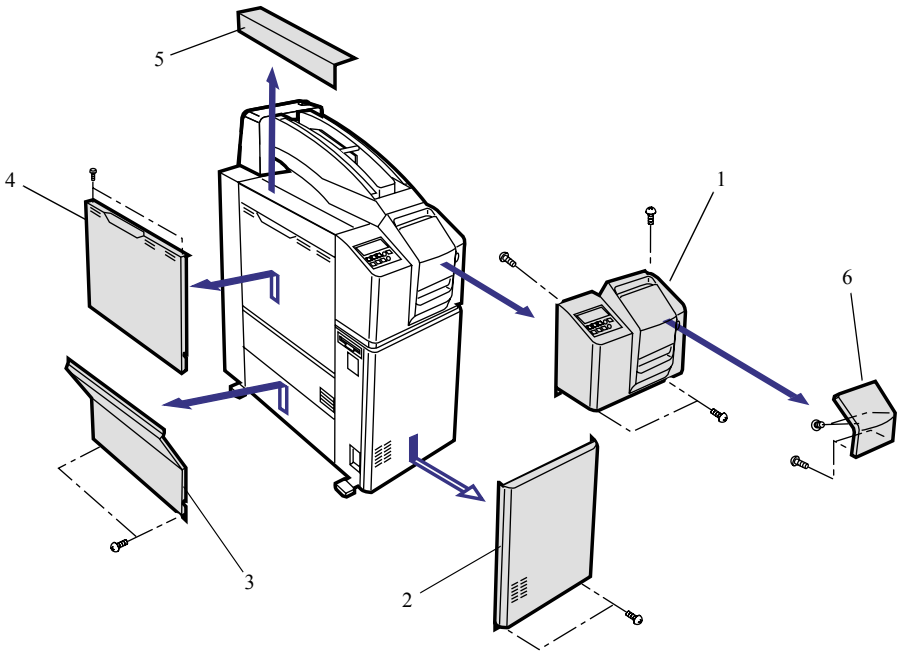
Removing covers

● Normal specification

Viewed from the front



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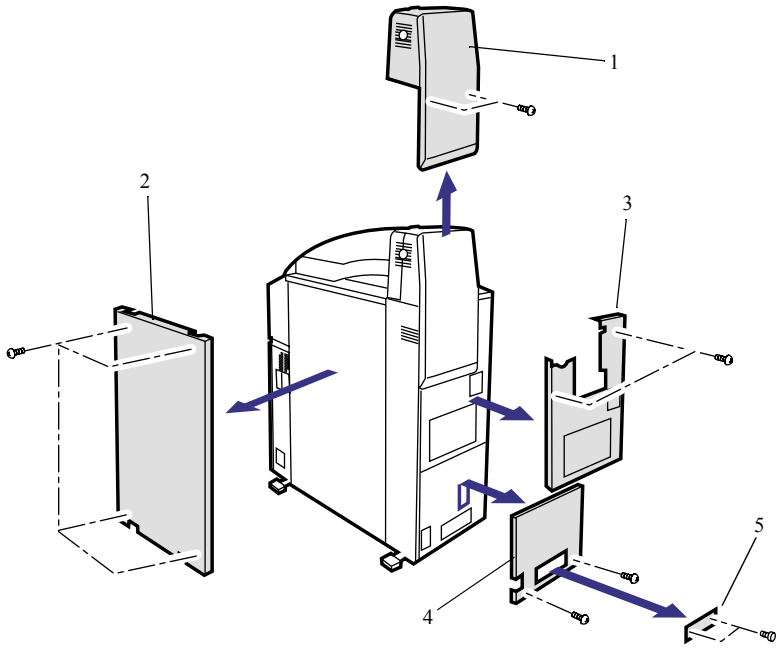
No.	Name	Screw (Q'ty)	Remarks
1	Loading box section cover	4	Loosen the screw of upper right.
2	Control box cover	2	
3	Replenisher section cover [Replenisher section door]	2	Remove together with the replenisher section door.
4	Sub-tank side cover	2	Knob screw
5	Sub-tank top cover	Not in use	
6	Loading cover	4	Remove the screws after opening the loading cover.

IMPORTANT

- Attach the loading cover while pulling it toward you and set it to center.

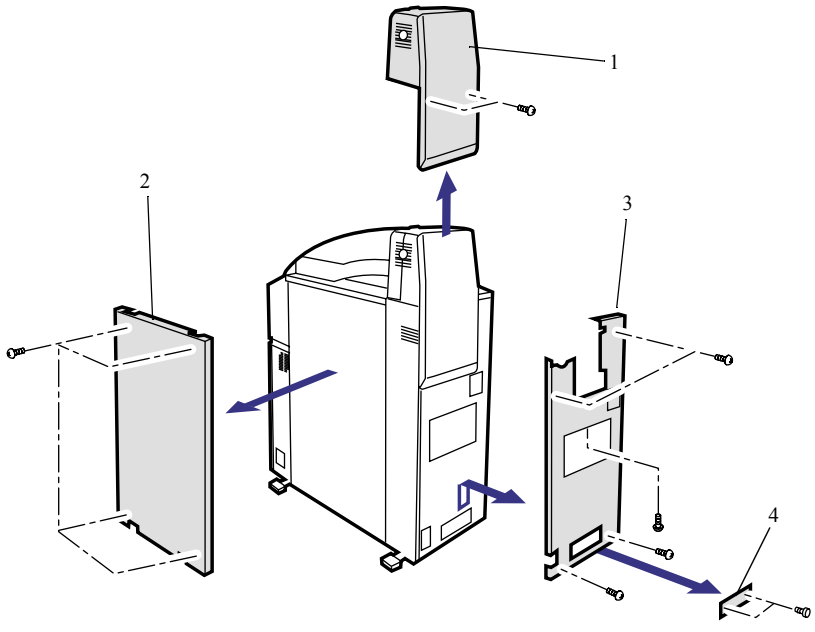
Viewed from back (When divided into the dryer unit cover and the replenisher pump cover)



G076009

No.	Name	Screw (Q'ty)	Remarks
1	Dryer cover	2	Knob screw
2	Waste solution tank cover	4	
3	Dryer unit cover	2	Remove the dryer cover and then remove the dryer cover.
4	Replenisher pump cover	2	
5	Maintenance cover	2	Knob screw

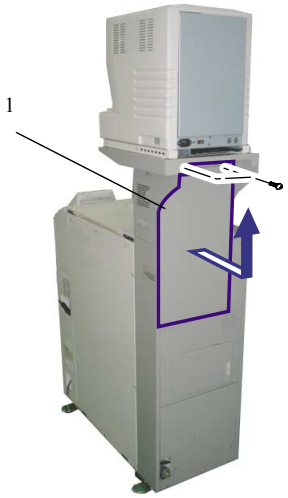
Viewed from back (When the dryer cover is one-piece type)



G080452

No.	Name	Screw (Q'ty)	Remarks
1	Dryer cover	2	Knob screw
2	Waste solution tank cover	4	
3	Dryer unit cover	5	Remove the dryer cover and then remove the dryer cover.
4	Maintenance cover	2	Knob screw

Viewed from back (When the T-15/S1-ll connection unit is installed)



G084602

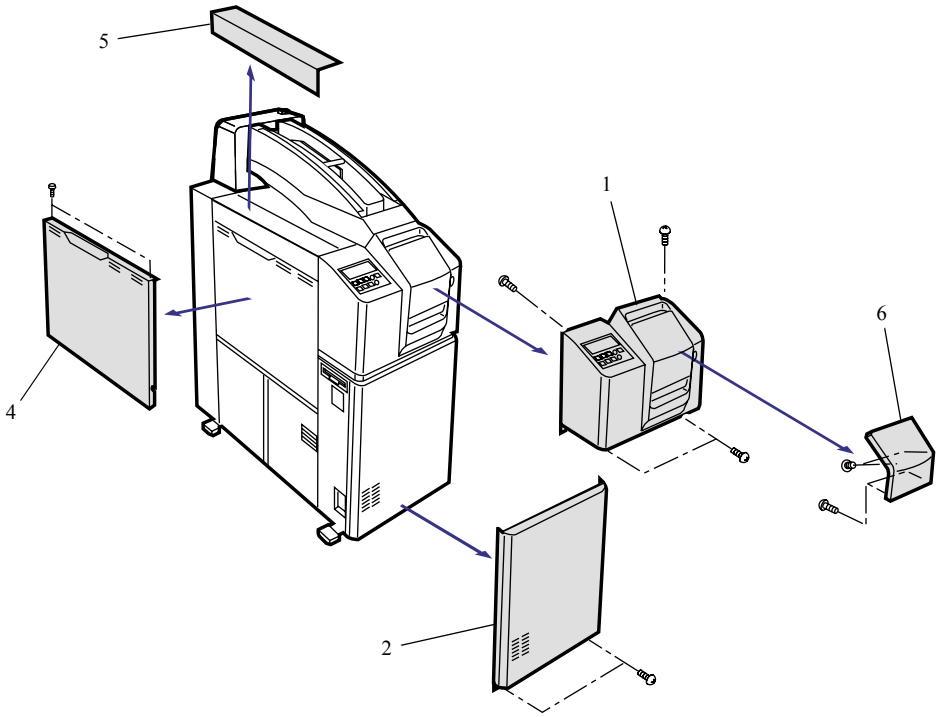
NOTE

- When the T-15/S1-ll connection unit is installed, the dryer cover is subject to change.

No.	Name	Screw (Q'ty)	Remarks
1	Dryer cover	2	Knob screw

● Front side (SM specification)

Viewed from the front



G075996

No.	Name	Screw (Q'ty)	Remarks
1	Loading box section cover	4	Loosen the screw of upper right.
2	Control box cover	2	
4	Sub-tank side cover	2	Knob screw
5	Sub-tank side cover	Not in use	
6	Loading cover	4	Remove the screws after opening the loading cover.

IMPORTANT

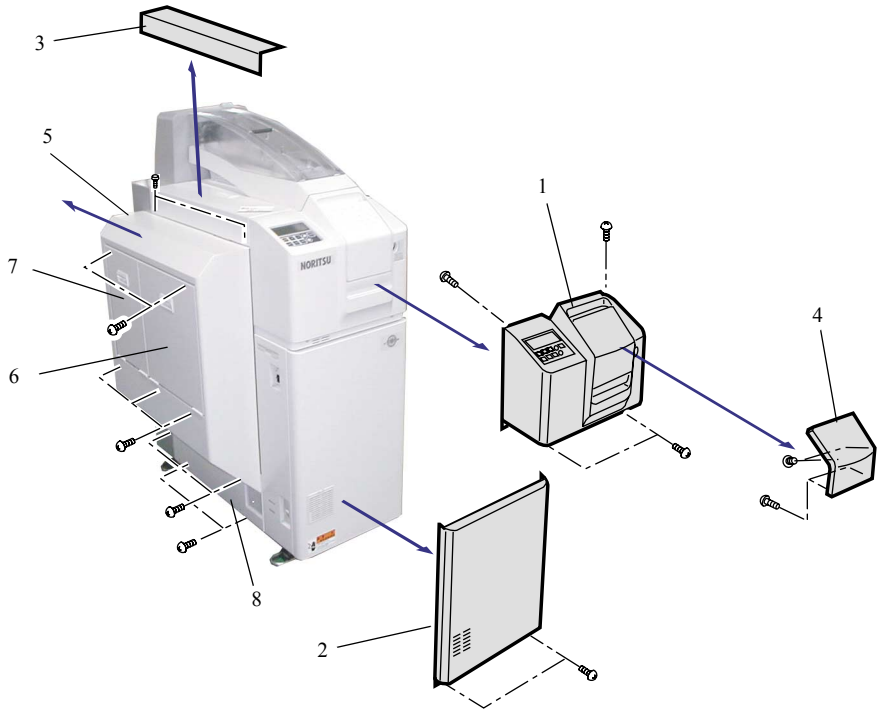
- Attach the loading cover while pulling it toward you and set it to center.

NOTE

- The external view from the back is the same as that of normal specification.
  Refer to ☞ Viewed from back (When divided into the dryer unit cover and the replenisher pump cover) for normal specification.

● Front side (F specification)

Viewed from the front



G085860

No.	Name	Screw (Q'ty)	Remarks
1	Loading box section cover	4	Loosen the screw of upper right.
2	Control box cover	2	
3	Sub-tank side cover	Not in use	
4	Loading cover	4	Remove the screws after opening the loading cover.
5	Replenisher section cover	4	
6	Replenisher section door 1	5	Remove the replenisher section doors with attaching frames.
7	Replenisher section door 2		
8	Replenisher section lower cover	2	

IMPORTANT

- Attach the loading cover while pulling it toward you and set it to center.

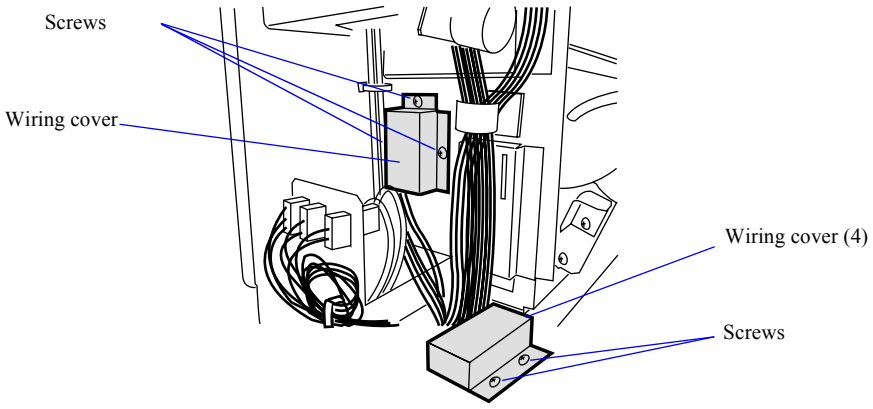
NOTE

- The external view from the back is the same as that of normal specification.
  Refer to ☞ Viewed from back (When divided into the dryer unit cover and the replenisher pump cover) for normal specification.

Removing the film loading unit

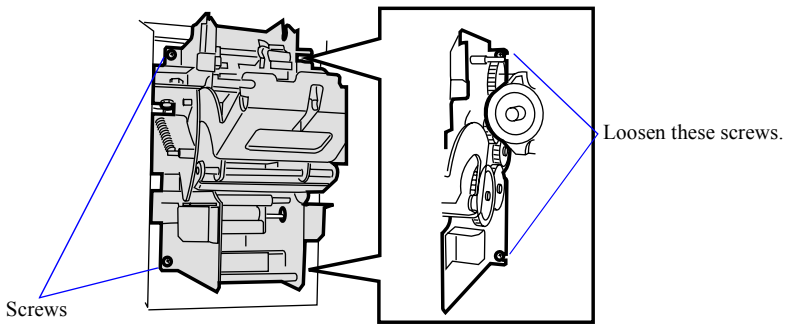
Procedure

1. Remove the loading cover. ☞ 2001
2. Remove the loading box section cover. ☞ 2001
3. Remove the wiring cover. (Three screws)
4. Remove wiring cover (4). (Two screws)



G075619

5. Unplug the connector(s).
   - J/P59 (Power PCB 2) ☞ 6321
   - J/P60 (Power PCB 2) ☞ 6321
6. Remove the film loading unit. (Loosen two of the four screws.)



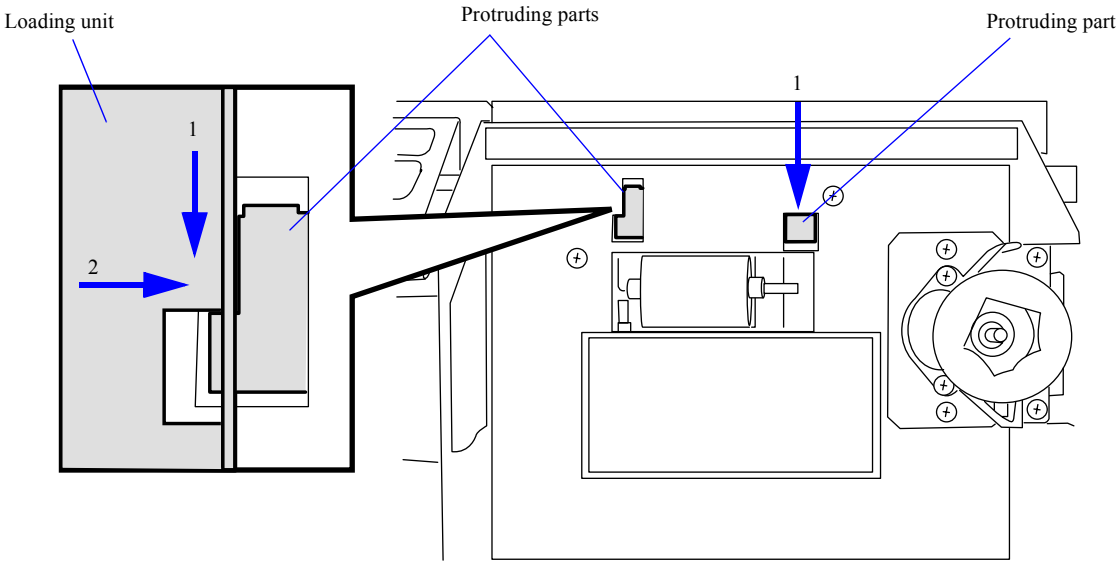
G075620

7. Reassemble the parts as they were.

Precautions when reattaching

1. Positioning the film loading unit
   1. Put the loading unit on the protruding part to fix the attaching position in the vertical direction. (Arrow 1)

2. Move the unit to the right to fix the attaching position in the horizontal direction. (Arrow 2)



G075650

Replacing the film cutter blades

● Procedure

1. Remove the loading cover. ☞ 2001

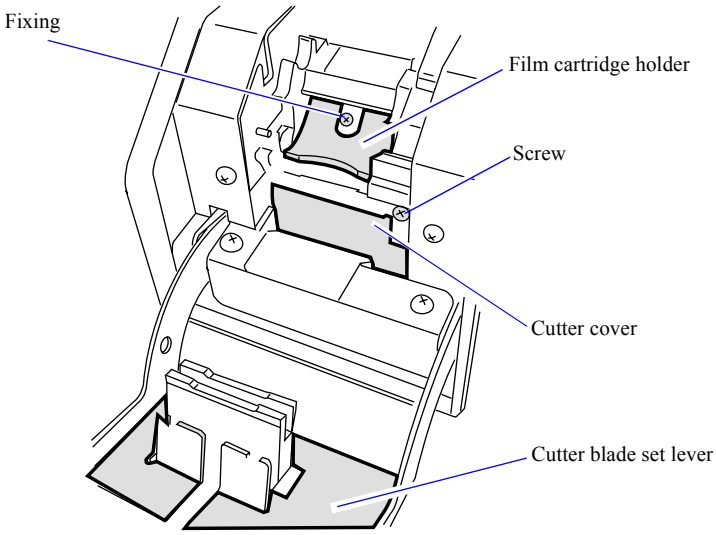
2. Remove the film cutter blade.

1. Open the cutter blade set lever.

NOTE

- It is safe as the cutter does not come out even if pressing down the film cartridge holder when opening the cutter blade set lever.

2. Remove the cutter cover. (Two screws)
3. Loosen a fixing screw.
   Loosen the screw for about two revolutions. The screw may come off if it is loosen more than that.



G075655

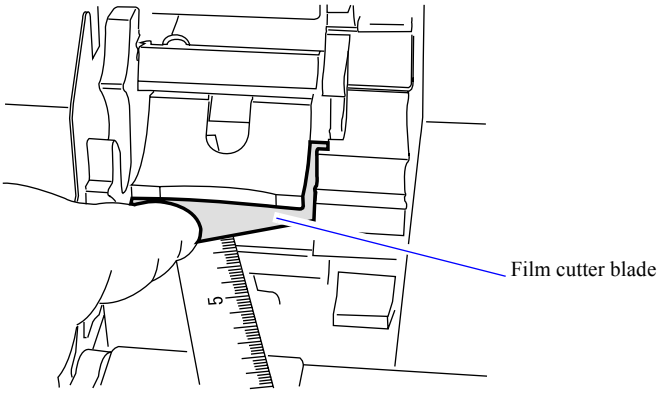
4. Remove the film cutter blade.

NOTE

- Removing will be easier by putting a thin and narrow plate under the cutter blade cover and taking out while holding the cover.

⚠WARNING

- Handle the film cutter blade carefully not to cut your fingers.

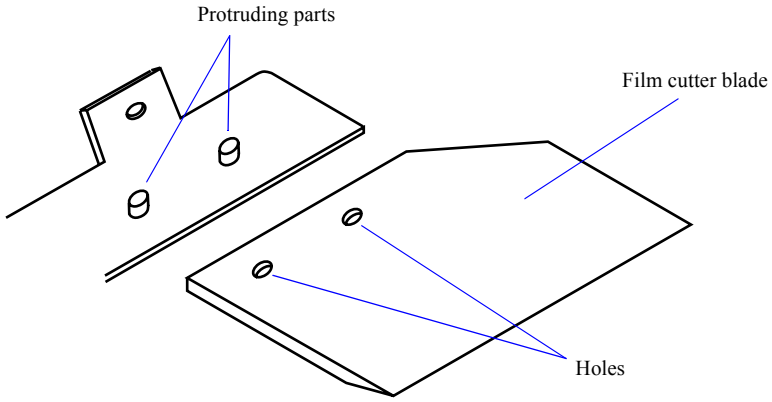


G075656

3. Replace the film cutter blade.

IMPORTANT

- When attaching a new film cutter blade, set the protruding parts into the holes of the film cutter blade securely.



G075622

- Tighten a fixing screw.

Precautions when reattaching

1. Check that the cutter blade cover does not touch the film cutter blade when opening the loading cover.
   - Refer to Adjusting the position of the cutter blade cover. ☞2121
2. Check if the loading cover is securely locked.
   - Refer to Adjusting the position of the loading cover lock solenoid. ☞2151

Adjusting the position of the cutter blade cover

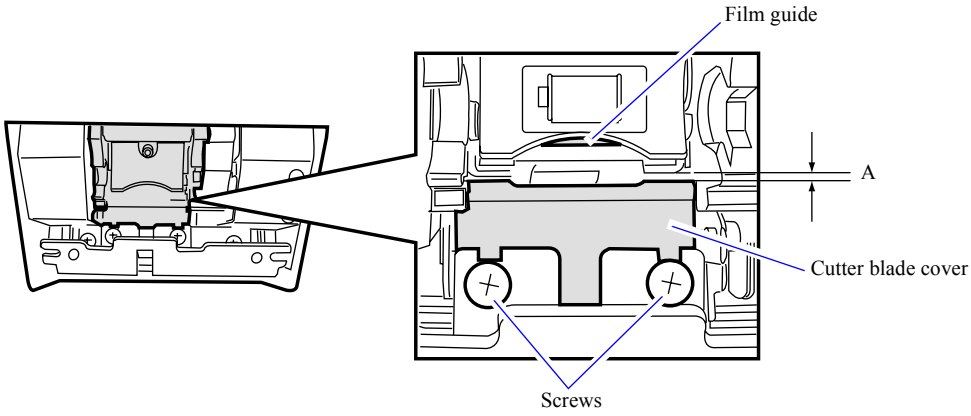
● Procedure

1. Remove the loading cover. ☞ 2001

2. Remove the loading box section cover. ☞ 2001

3. Adjust the gap of the film guide.

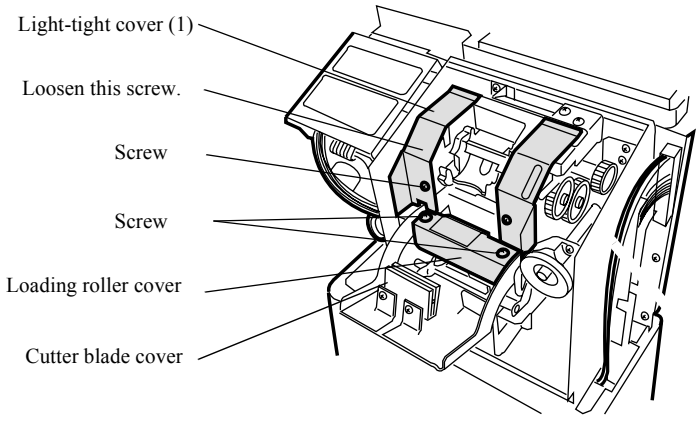
1. Close the cutter blade set lever to which the loading cover was attached.
2. Adjust the attaching position of the cutter blade cover so that the gap A between the film guide and the cutter blade cover becomes between 1 and 3 mm. (Two screws)



G075624

4. Adjust the position of the cutter blade cover horizontally. (Two screws)

1. Open the cutter blade set lever.
2. Remove the loading roller cover. (Two screws)
3. Remove light-tight cover (1). (Loosen one of the two screws.)

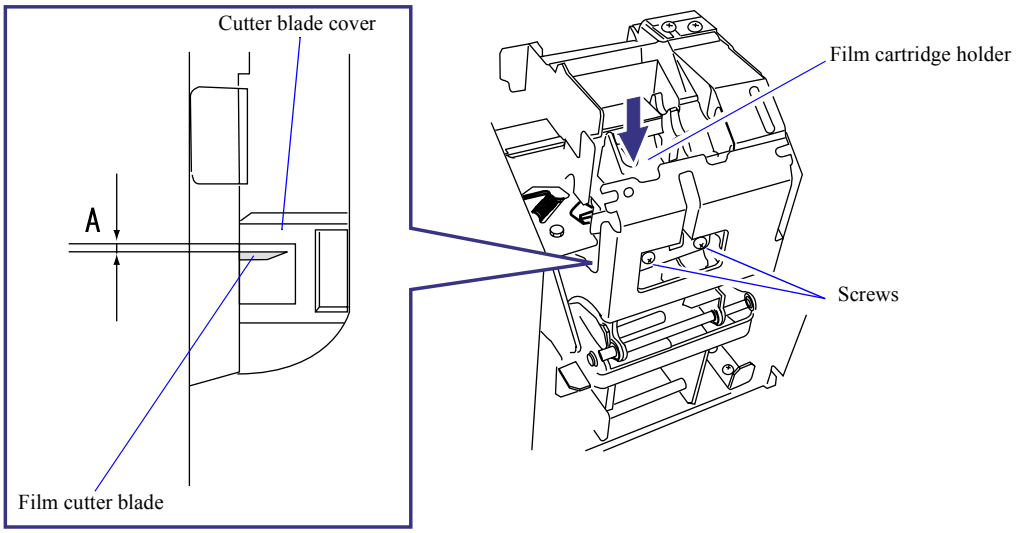


G075617

4. Close the cutter blade set lever.
5. Push the film cartridge holder in the direction indicated by the arrow to operate the cutter blade.
6. Adjust the position of the cutter blade cover so that the gap A between the film cutter blade and the film cutter cover becomes between 0 and 0.3 mm. (Two screws)

⚠WARNING

- Handle the film cutter blade carefully not to cut your fingers.



G076088

● Precautions when reattaching

- None

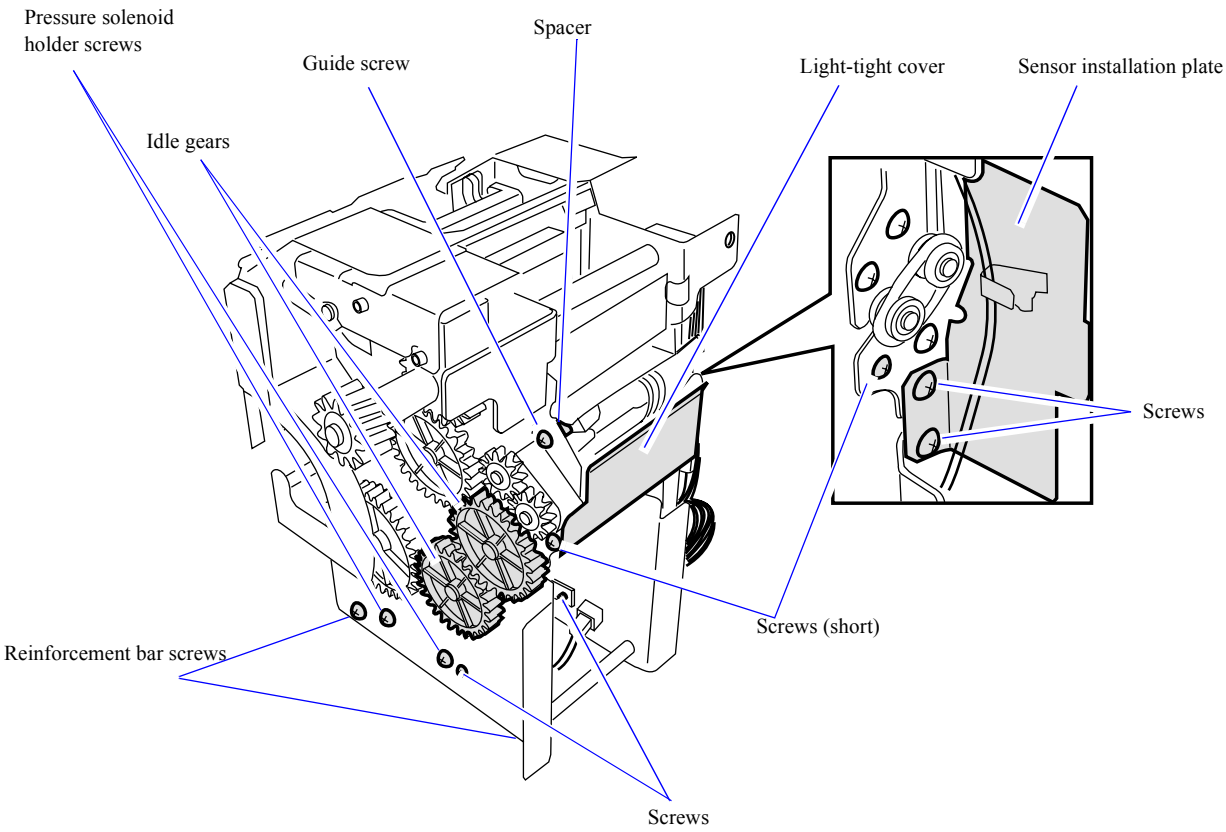
Replacement of the film sensor unit

● Procedure

1. Remove the loading unit. Refer to ☞ 2101.
2. Remove the light-tight cover from the loading unit.
   1. Remove a guide screw (one) and spacer.
   2. Remove two screws of the sensor installation plate.
   3. Remove the two idle gears. (E-ring: one each)
   4. Remove the light-tight cover. (four screws, two of them are short)

IMPORTANT
- The length of the screws are different. When installing, do not put the short screws in the wrong position.

NOTE
- The light-tight cover is placed between the plates on the right and the left. When it is hard to remove the light-tight cover, loosen the reinforcement bar screws (two) and the pressure solenoid holder screws (two).



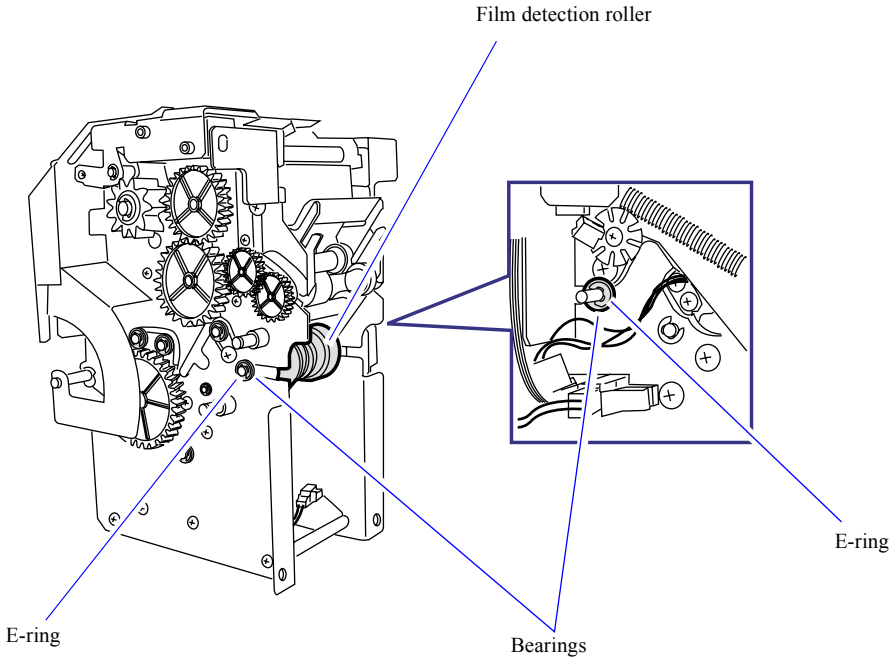
3. Remove the film detection roller.

1. Remove E-rings (two) and bearings (two).

IMPORTANT

- Thrust washer may be placed between an E-ring and a bearing. When assembling, return them as they were.

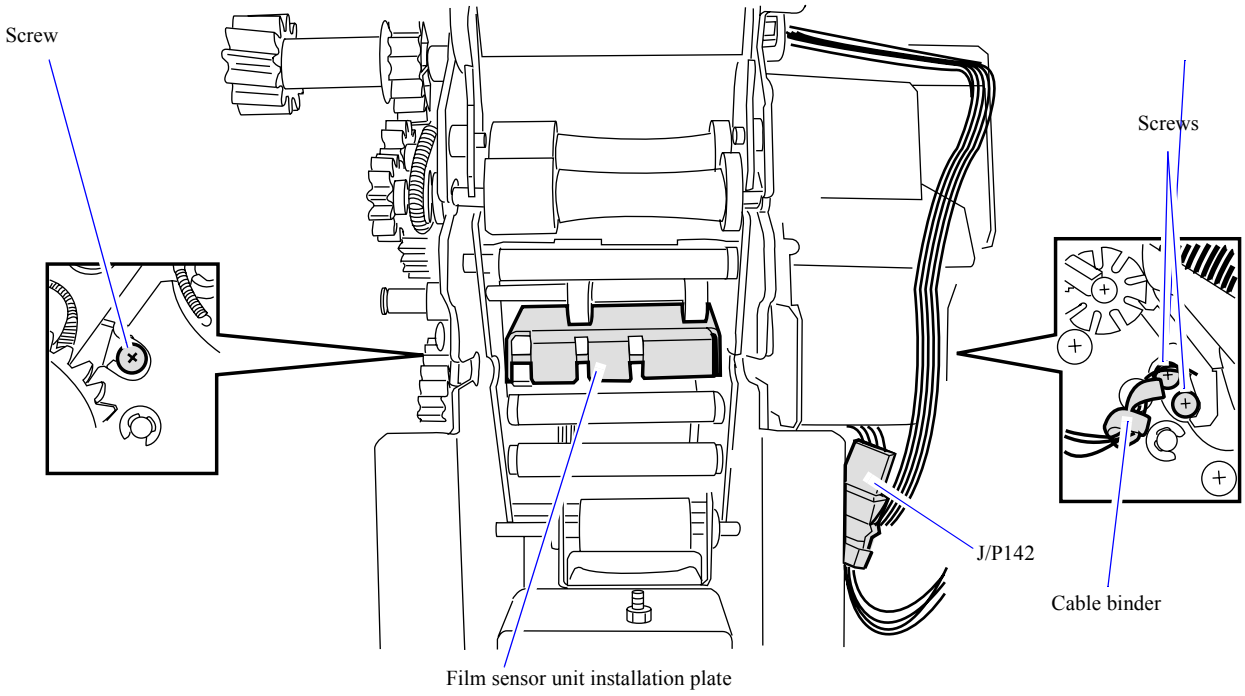
2. Remove the film detection roller.



G075660

4. Remove the film sensor unit.

1. Disconnect the connector (J/P142) and remove the cable from the cable binder.
2. Remove the screws (three screws) and the film sensor unit installation plate.



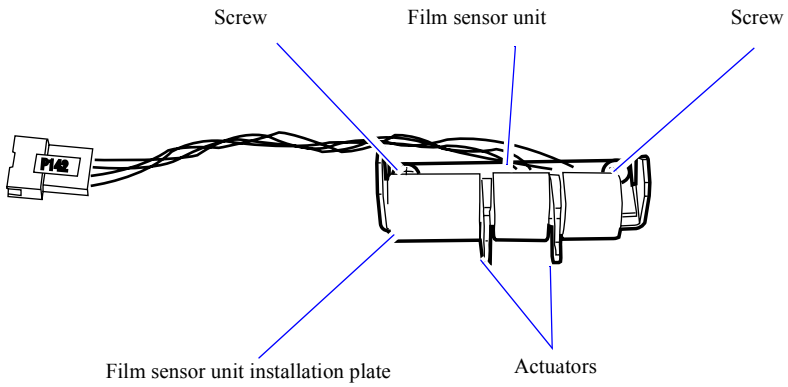
G074371

5. Replace the film sensor unit.

1. Remove the screws (two) and replace the sensor unit.

NOTE

- Spacer is placed between the film sensor unit and the film sensor unit installation plate. Be careful not to lose the spacer.



G074372

IMPORTANT

- When attaching the film sensor unit to the film sensor unit installation plate, attach the actuator not to touch the film sensor unit installation plate.

6. Reassemble the parts as they were.

IMPORTANT

- When installing the film detection roller, check that the actuator does not touch the film detection roller. If the actuator touches the film detection roller, adjust the installation position of the film sensor unit installation plate.
- Attach the loading cover while pulling the surplus space of the screw holes and adjust its horizontal direction to the center.

● Checking after adjustment

1. When setting a leader card, check at ☞ 3071 if the film sensor and 135 film sensor are **CLOSE** in Input Checks.

2. Process the test film and check if the detected film size is correct and if the error such as **No.001-01 FILM STOPPED** does not occur.

Adjusting the position of the loading cover lock solenoid

Procedure

1. Remove the loading cover. ☞ 2001
2. Remove the loading box section cover. ☞ 2001
3. Attach the loading cover.

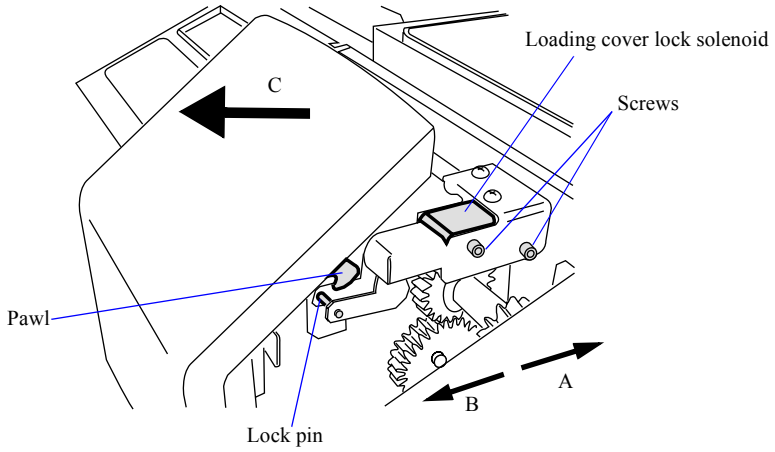
IMPORTANT

- Attach the loading cover while pulling it toward you and set it to center.

4. Adjust the position of the loading cover lock solenoid.
   1. Close the loading cover.
   2. Turn ON the loading cover lock solenoid in OUTPUT CHECK ☞ 3072 to lock the loading cover.
   3. Pull the loading cover in the direction indicated by the arrow C to check that the loading cover does not open.
      - When it opens:
        Adjust the position of the loading cover lock solenoid in the direction A to lock it. (Two screws)
   4. Turn OFF the loading cover lock solenoid.
   5. When opening the loading cover, check that the pawl does not touch the lock pin.
      - If the pawl touches the lock pin:
        Adjust the position of the loading cover lock solenoid in the direction B so that the pawl does not touch the lock pin. (Two screws)

IMPORTANT

- After adjusting the position of the loading cover lock solenoid in the direction B, be sure to turn ON the loading cover lock solenoid and check that the loading cover does not open.



G075639

5. Reassemble the parts as they were.

IMPORTANT

- Attach the loading cover while pulling the surplus space of the screw holes and adjust its horizontal direction to the center following the same procedure of step 3.

Checking after adjustment

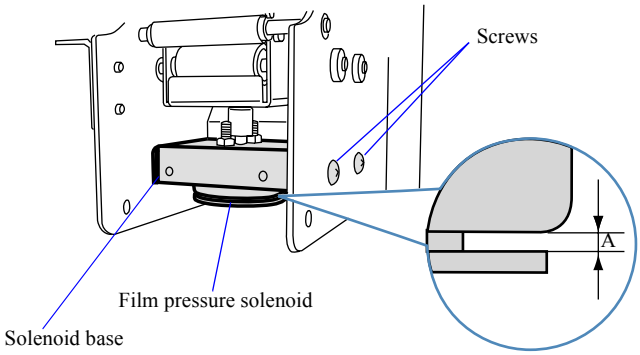
1. Operate the loading cover lock solenoid in OUTPUT CHECK ☞ 3072 to check if the loading cover is locked.
   - Loading cover lock solenoid ON: Locked
   - Loading cover lock solenoid OFF: Released

Adjusting the position of the film pressure solenoid

● Procedure

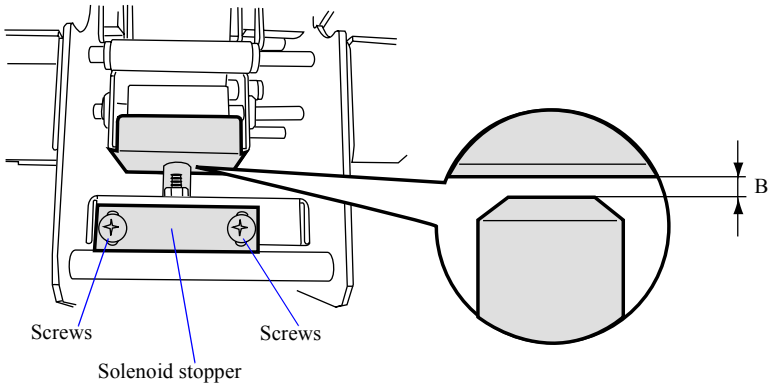
1. Remove the loading cover. ☞ 2001
2. Remove the loading box section cover. ☞ 2001
3. When the film pressure solenoid is on, adjust the installation position of the solenoid base so that section A is between 0.5 and 0.8 mm. (Four screws)

NOTE
- Turn on the film pressure solenoid with Output Check ☞ 3072.



G074373

4. When the film pressure solenoid is off, adjust the installation position of the solenoid stopper so that section B is between 0.5±0.5 mm. (Two screws)



G075640

5. Reassemble the parts as they were.

IMPORTANT
- Attach the loading cover while pulling the surplus space of the screw holes and adjust its horizontal direction to the center.

● Checking after adjustment

1. If the position of the film pressure solenoid was adjusted, be sure to process the leader card before processing the films to check if the leader card is fed without fail.

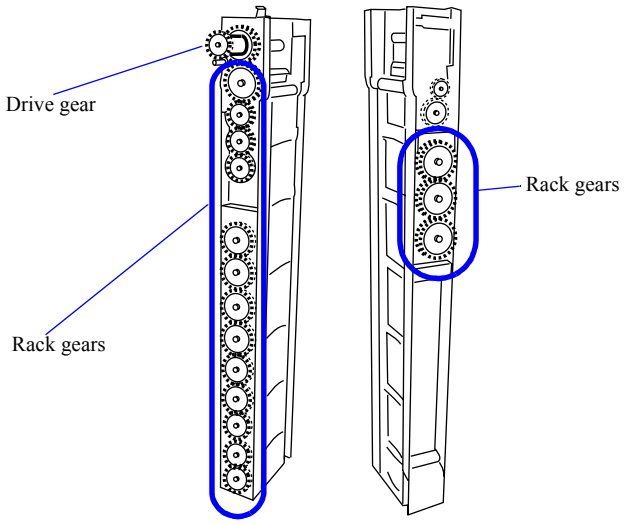
Pitch adjustment of processing racks

Procedure

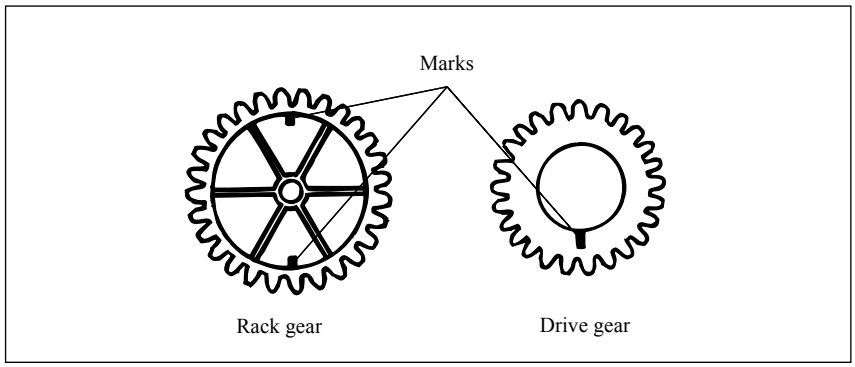
1. Remove the processing racks.
2. Set the drive gear and rack gears as the gear marks line in a straight.

IMPORTANT

- Due to the difference of each gear tooth quantity, it is only one point that all the gears can align at the center. When all the marks are aligned, all the flattened sections of shafts turn in the same direction.



G075628



G075629

3. Reassemble the parts as they were.

Checking after adjustment

1. When performing the pitch adjustment of processing rack, be sure to process some leader cards before processing films to check if the perforations of the leader card are not damaged.

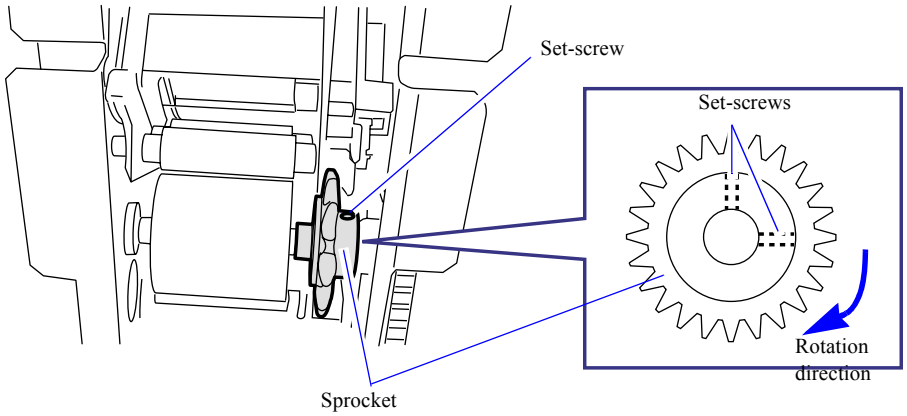
Pitch adjustment of dryer rack

● Procedure

1. Remove the dryer rack.
2. Loosen two set-screws of inlet sprocket.
   1. Set the position of the set-screws, one at the far side and the other at the upper side.

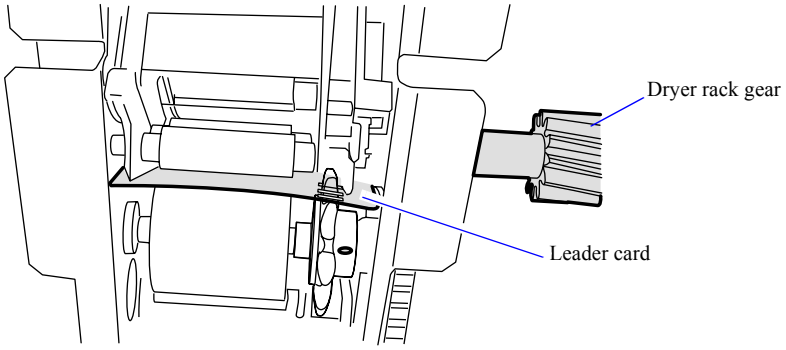
NOTE

- By setting the position of one set-screw up at the viewable side, it will be easy to tighten the screw after the adjustment.



G075632

3. Insert the leader card from the inlet of dryer rack.
4. When the front end of the leader card touches the lower turn sprocket, rotate about 1/3 the dryer rack gear counterclockwise.



G075636

5. Tighten two set-screws of inlet sprocket.
6. Reassemble the parts as they were.

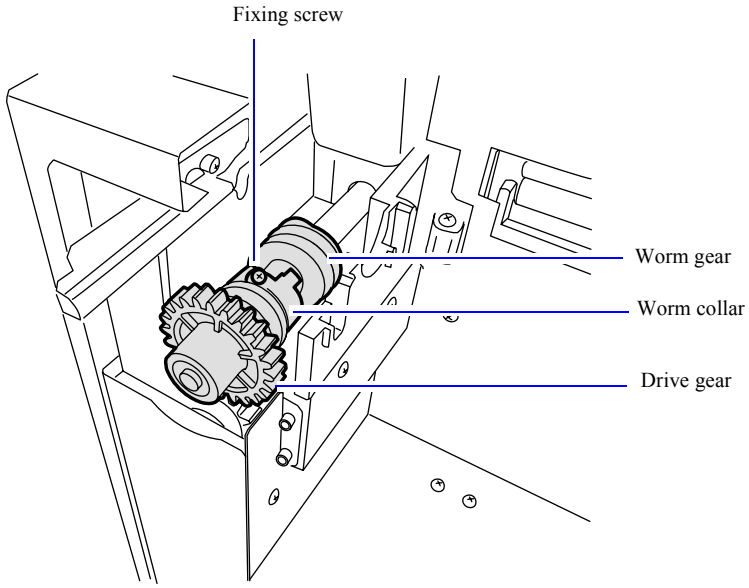
● Checking after adjustment

1. When performing the pitch adjustment of dryer rack, be sure to process some leader cards before processing films to check if the perforations of the leader card are not damaged.

Pitch adjustment of processing racks and dryer rack

● Procedure

1. Remove the dryer rack.
2. Loosen a fixing screw of worm collar to make the worm gear rotate freely.

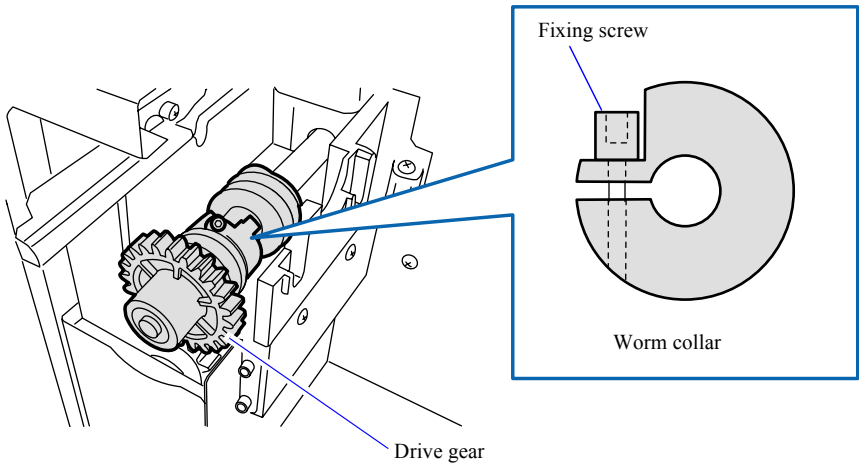


G075634

3. Remove upper turn guide 5.
4. Insert the leader card into No. 7 processing rack and advance the leader card by turning the handle.

NOTE
- As for the leader card, using IX240 makes the following checking operation easier.

5. Stop the handle when the front end of the leader card reaches to the dryer inlet.
6. Face the fixing screw of the worm collar up.



G075635

7. Attach the dryer rack.

8. Perform the pitch adjustment.

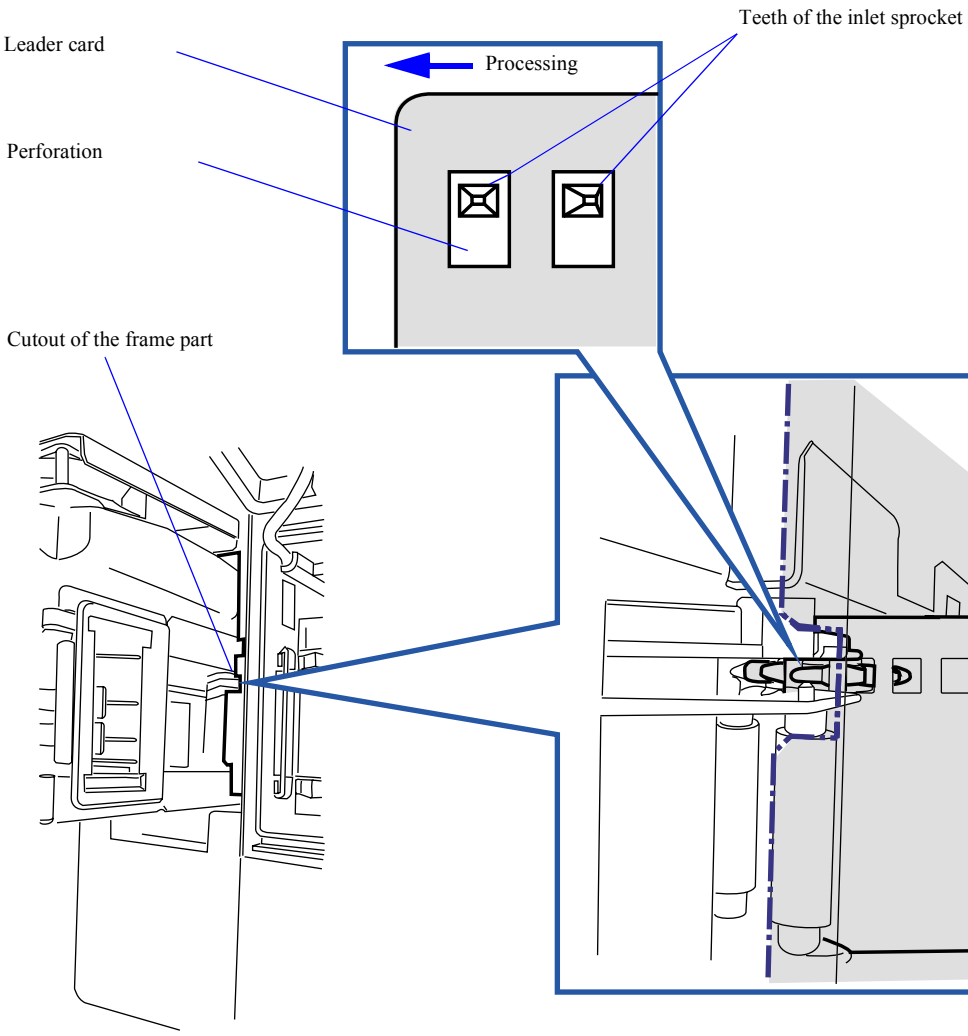
NOTE

- Perform the pitch adjustment looking through the frame cutout.
  If it is not easy to look, light the inside of the frame cutout with flashlight.

1. Rotate the drive gear and the worm collar clockwise little by little. Stop them at the position where a tooth of the inlet sprocket of the dryer rack comes into the first perforation of the leader card.

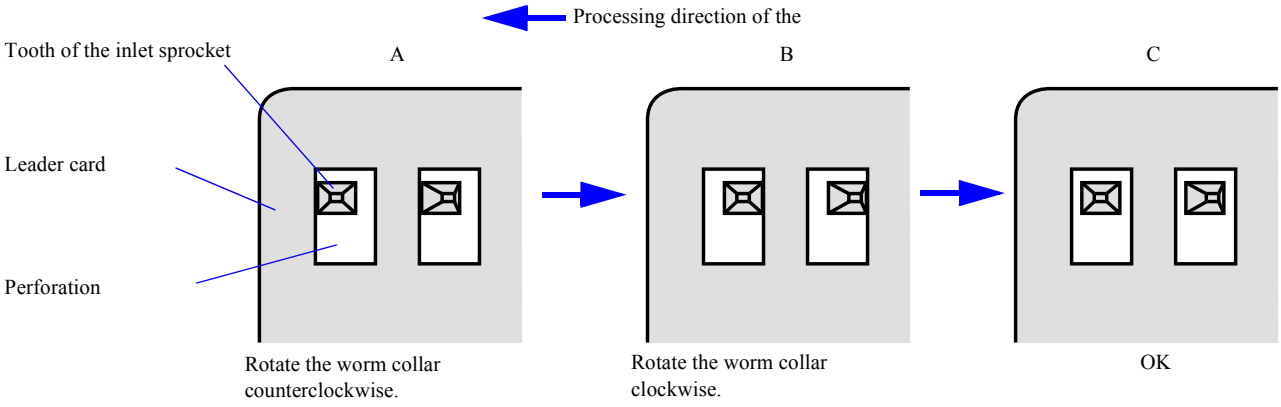
IMPORTANT

- Be sure to rotate the drive gear and the worm collar at the same time. If only the drive gear is turned, the inlet sprocket of the dryer rack does not turn and the leader card hits the sprocket and bends in result.



G075638

2. Adjust the teeth of the inlet sprocket to place at the center of the perforations (figure C below) by turning the worm collar.

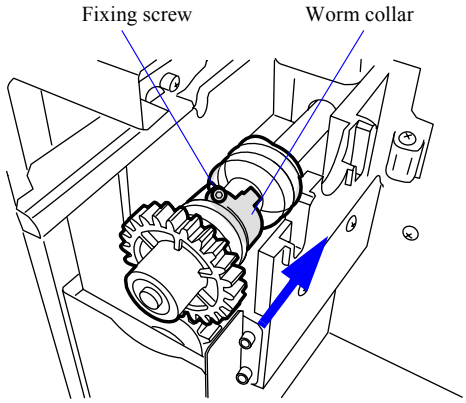


G075637

IMPORTANT

- Be sure to adjust by turning the worm collar clockwise to bring the condition of figure C above from B. When the condition is as figure A above, turn the worm collar counterclockwise first to bring the condition as B.
- If the worm collar is adjusted from the condition of figure A above by turning it counterclockwise, the timing may differ as much as the backlash of the gear as it drives to turn clockwise.

3. Push off the worm collar in the arrow direction and tighten a fixing screw.



G075658

IMPORTANT

- Be careful not to turn the worm collar itself when fixing it. If the worm collar turns itself, the timing will be different.

9. Reassemble the parts as they were.

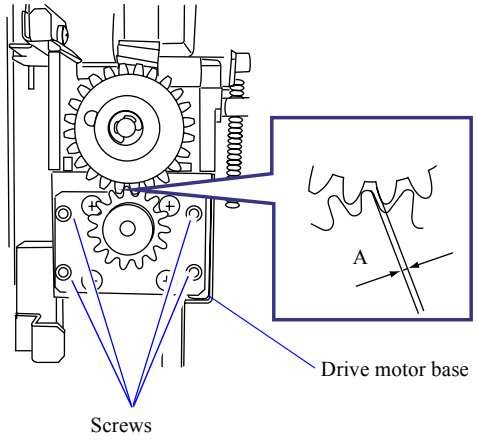
● Checking after adjustment

1. When performing the pitch adjustment of processing racks and dryer rack, be sure to process some leader cards before processing films to check if the perforations of the leader card are not damaged.

Backlash adjustment of the drive gear

Procedure

1. Remove the dryer cover. ☞ 2001
2. Remove the dryer cover. ☞ 2001
3. Adjust the backlash of the drive gear.
   1. Loosen four screws of the drive motor base.
   2. Adjust the attachment position of the drive motor base and make the drive gear backlash (part A) 0.2 mm to 0.5 mm.



G075630

4. Reassemble the parts as they were.

Replacing the battery pack

● Procedure

IMPORTANT

- When replacing the battery pack, be sure to turn OFF not only the circuit breaker but also the drive switch.

1. Remove the control box cover. ☞ 2001

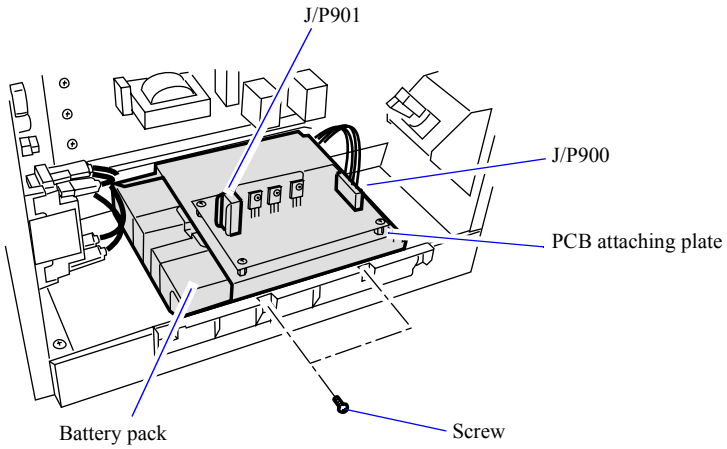
2. Remove the battery pack.

1. Disconnect J/P901 connector.

IMPORTANT

- Be sure to disconnect J/P901 connector (battery pack) first.
  When the circuit breaker is turned off, the battery pack supplies DC+24 V to power PCB 2. Therefore, it may damage power PCB 2 or the backup PCB if disconnecting J/P900 first.

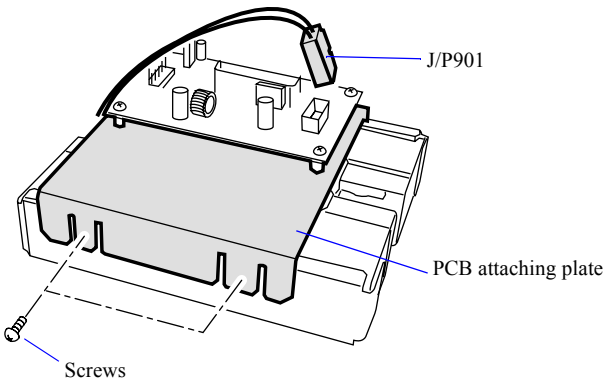
2. Disconnect J/P900 connector.
3. Remove two screws.
4. Remove the battery pack holding the front side together with the PCB attaching plate.



G075646

3. Replace the battery pack.

1. Remove the PCB attaching plate from the battery pack. (Two screws)
2. Replace the battery pack.



G075653

4. Reassemble the parts as they were.

IMPORTANT

- Connect J/P901 connector (battery pack) at the end.

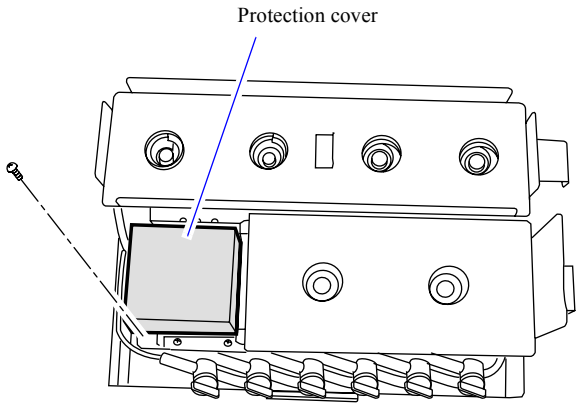
If J/P900 connector is connected earlier, the battery pack supplies DC+24 V even with the circuit breaker turned off. Therefore, it may damage power PCB 2 or the backup PCB at connecting J/P900.

- Write down the battery pack replacing date on the battery replacement label.
- After the battery replacement, charging for more than 12 hours is necessary.
  When a power failure occurred after charging less than 12 hours, the drive may stop before ejecting the film in process.

Replacing the probe [SM]

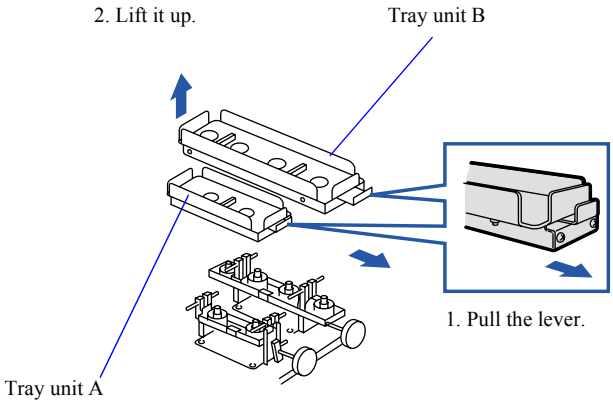
Procedure

1. Pull out the replenishment package unit.
2. Remove the replenishment package.
3. Remove the protection cover of the SM sensor PCB. (One screw)



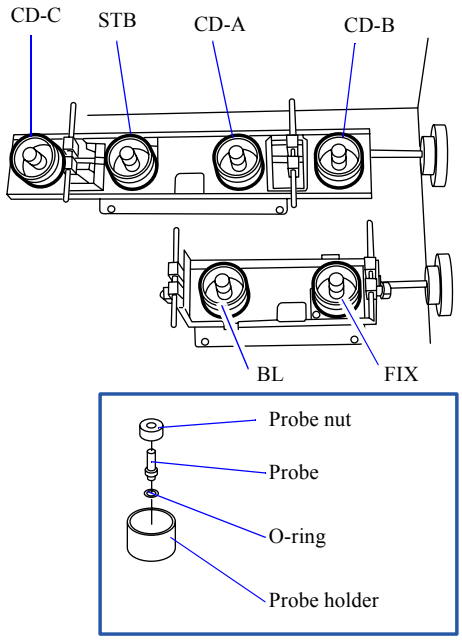
G075651

4. Unplug the tray unit connectors.
   J/P700: Tray unit A (SM sensor PCB) ☞ 6341
   J/P701: Tray unit B (SM sensor PCB) ☞ 6341
5. Remove the tray units A and B.



G076069

6. Remove the probe nuts and the probes.



G076070

7. Set the new probes, then tighten the probe nuts securely using the probe replacing jig.

IMPORTANT

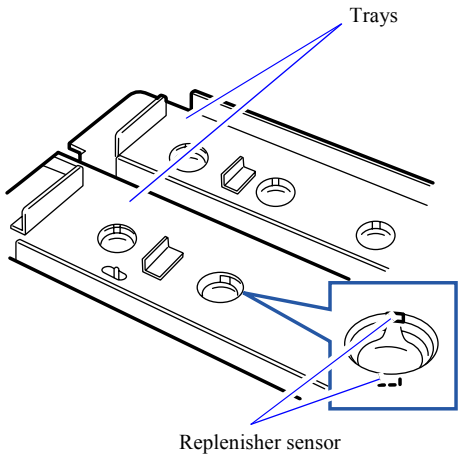
- The O-rings are attached to the new probes.
- The probe (including the O-ring) should be used properly for each solution.
  For **CD-A solution**, use with the combination of the whole black probe and the O-ring marked with a white dot.
  For **other solutions**, use with the combination of the probe which the resin part is brown and the O-ring marked with a green dot.
- The probe replacing jig is a service personnel tool. Refer to **Service personnel tool list**.

8. Reassemble the parts as they were.

Adjusting the sensitivity of the replenisher sensor [SM]

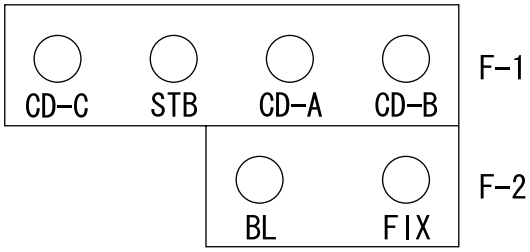
● Procedure

1. Clean the LED and detection sections of the replenisher sensor.



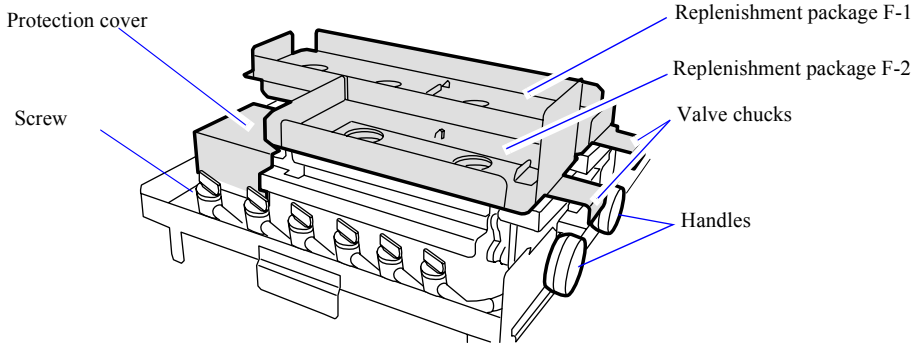
G050894

Sensor arrangement



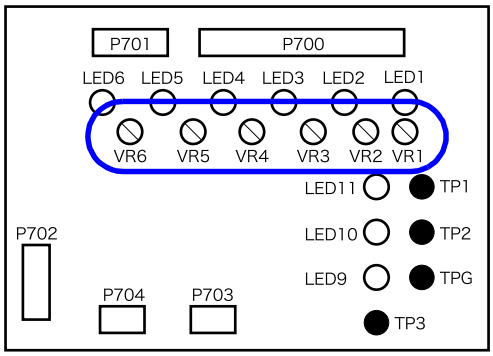
G075654

2. Attach the replenishment package containing the replenishment solution.
3. Set the valve chuck, then turn the handle to ON position.
4. Remove the protection cover of the SM sensor PCB.
(One screw)



G075652

5. Turn the VR of each sensor on the SM sensor PCB counterclockwise fully.



G075641

VR	Replenisher sensor
Counterclock wise	Decreases the amount of light.
Clockwise	Increases the amount of light.

6. Adjust each VR depending on each LED condition which is OFF.
   1. If LED turns ON by turning clockwise less than twice from the left most position, carry out the operation of ☞ If LED turns on by rotating less than twice.
   2. Carry out ☞ If LED turns on by rotating more than twice, if LED turns ON by turning clockwise more than twice from the left most position.

Processing solution	VR No.	LED No.
CD-B	VR1	LED1
CD-A	VR2	LED2
STB	VR3	LED3
CD-C	VR4	LED4
FIX	VR5	LED5
BL	VR6	LED6

● If LED turns on by rotating less than twice

1. Turn the VR of each replenisher sensor clockwise from the most left and when the LED lights up by within 2 rotations, return to the most left and turn clockwise again 3 times.

IMPORTANT

- The condition is included that the LED lights up with the VR at the most left.

2. Reassemble the parts as they were.

● If LED turns on by rotating more than twice

1. Turn the VR of each replenisher sensor clockwise slowly while counting the rotation and stop turning it at the position where the LED lights up.

IMPORTANT

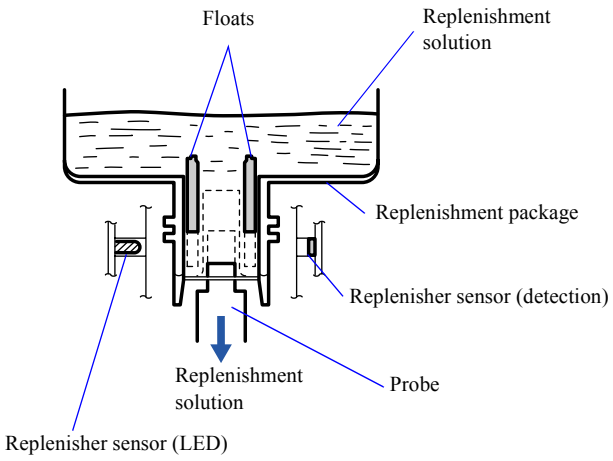
- If the VR is turned too far clockwise, turn it counterclockwise until the LED goes off. Then turn it clockwise again until the LED lights up.

2. Turn the VR of each sensor clockwise one rotation more from the position of **Step 1**.

3. Replace the replenisher sensor and adjust its sensitivity if total number of the VR rotations of each sensor exceeds 11 times in **step 1** and **step 2**.

NOTE

- The maximum number of VR rotations for each replenisher sensor is 13 times.
- If the float in the replenishment package blocks off the replenisher sensor, the LED goes off.



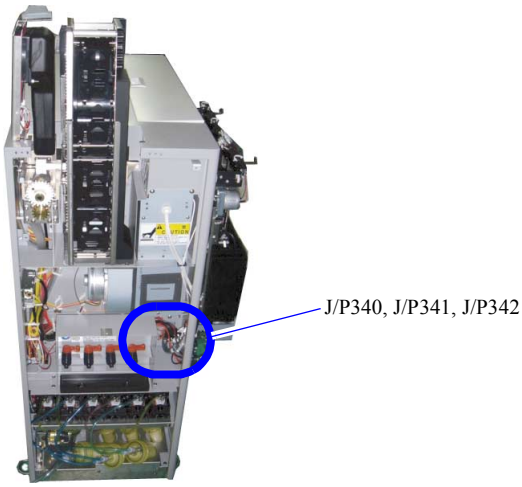
G050897

4. Reassemble the parts as they were.

Removing F replenisher unit

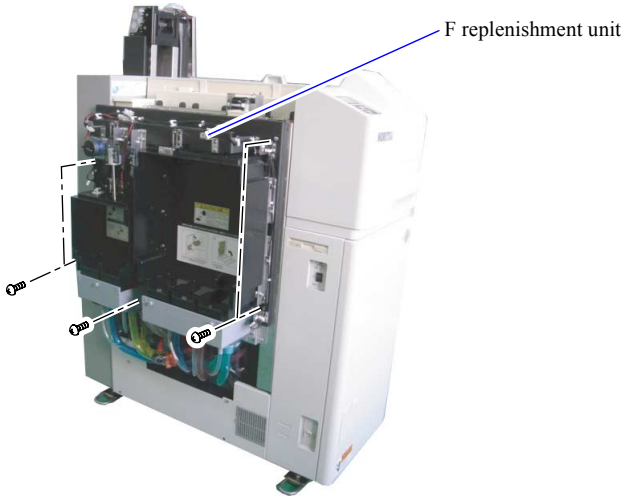
Procedure

1. Remove the replenisher cover, replenisher section doors 1 and 2, dryer cover and dryer unit cover.
☞2001
2. Unplug the connector(s).
   - J/P340: relay connector
   - J/P341: relay connector
   - J/P342: relay connector



G085861

3. Remove the F replenisher unit. (five screws)

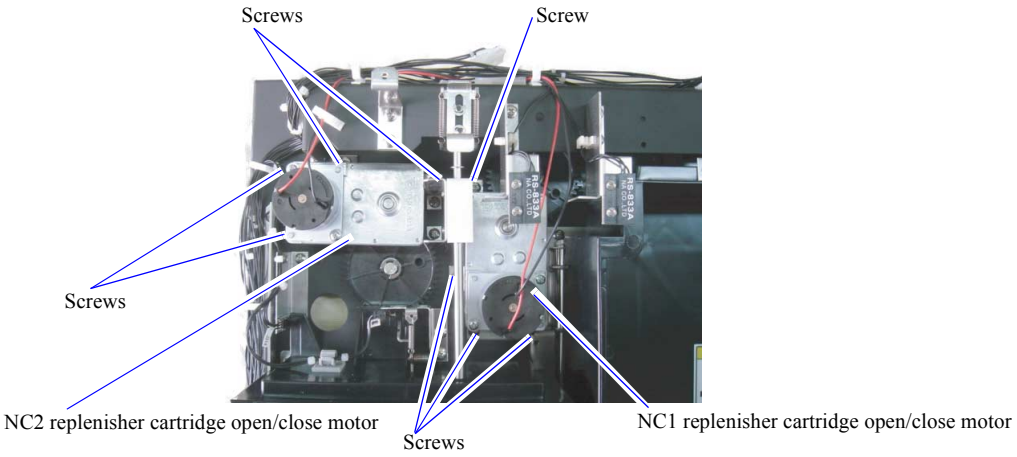


G085862

Replacing the replenisher cartridge open/close motor

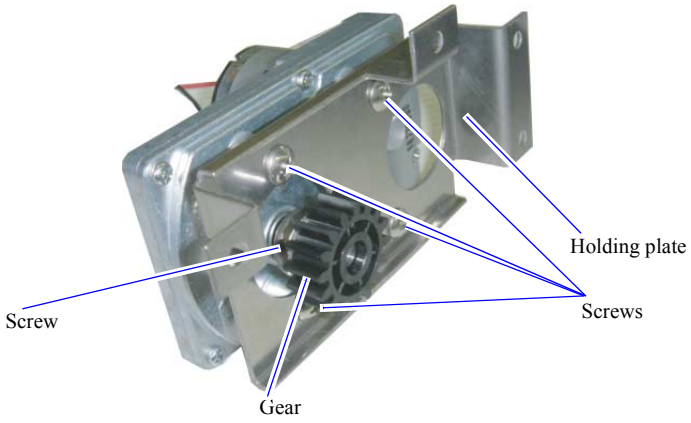
Removing

1. Remove the replenisher cover and replenisher section doors 1 and 2.
☞2001
2. Unplug the connector(s).
   - J/P270: relay connector (NC1)
   - J/P271: relay connector (NC2)
3. Remove the replenisher cartridge open/close motor. (four screws each)



G085863

4. Remove the holding plate of the replenisher cartridge open/close motor (four screws) and gear (one screw).

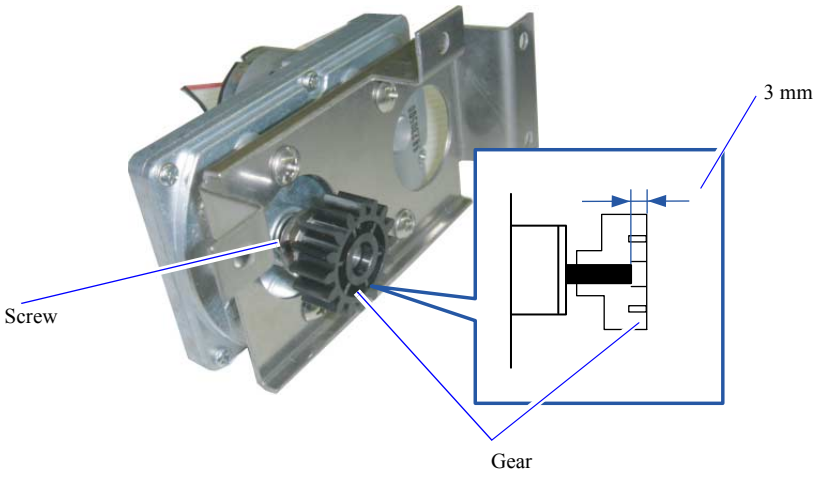


G085874

Cautions when installing

Caution when installing the gear

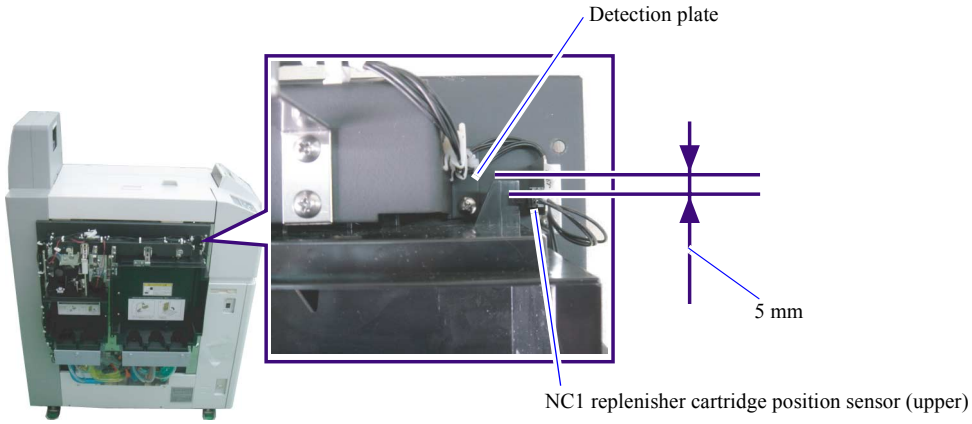
Install the gear of the replenisher cartridge open/close motor so that there is 3 mm between outer surface of the gear and the motor shaft end. (One screw)



G085875

Caution when installing the NC1 replenisher cartridge open/close motor

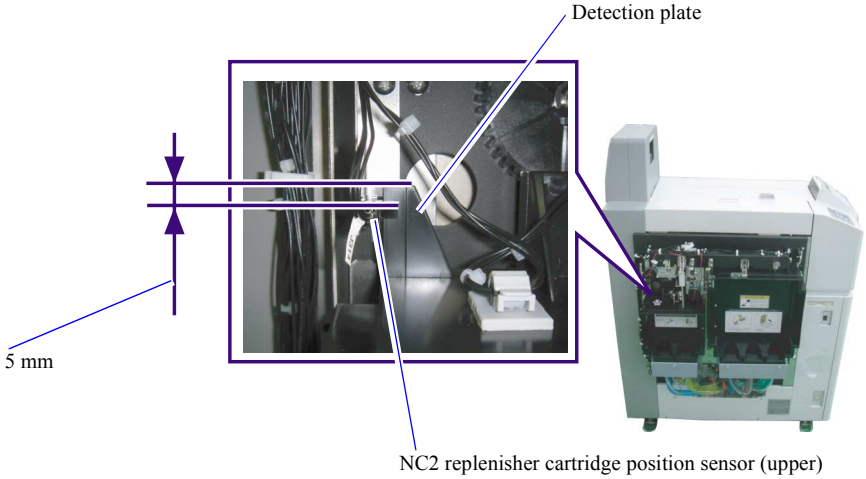
Fix the NC1 replenisher cartridge open/close motor with the detection plate of the NC1 cartridge set about 5 mm sticking out from the NC1 replenisher cartridge position sensor (upper). (four fixing screws)



G085864

Caution when installing the NC2 replenisher cartridge open/close motor

Fix NC2 replenisher cartridge open/close motor with the cam roller of the drive gear located right side up and the detection plate of the NC2 cartridge set about 5 mm protruded from NC2 replenisher cartridge position sensor (upper). (four fixing screws)

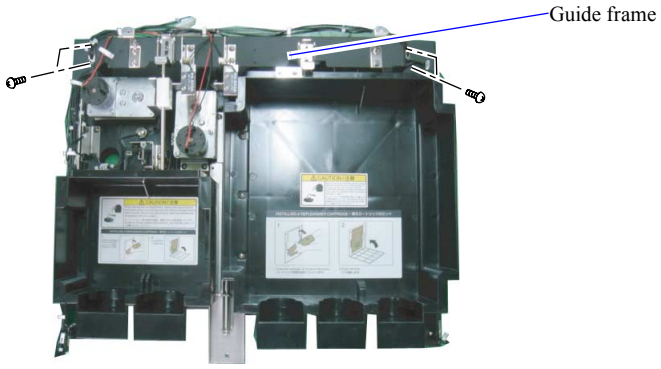


G085865

Replacing the replenisher cartridge set

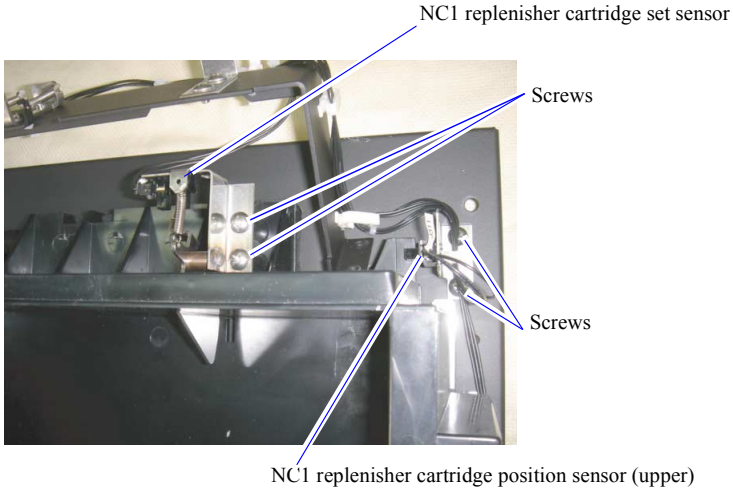
● Removing the NC1 replenisher cartridge set

1. Remove the F replenisher unit.
☞2801
2. Remove the guide frame. (Four screws)



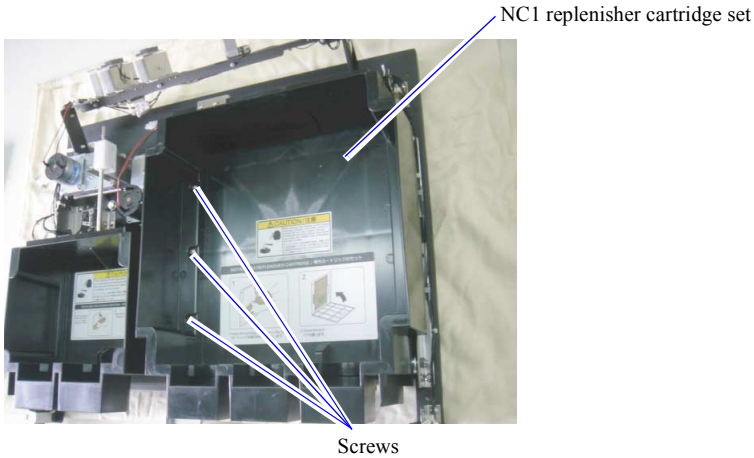
G085866

3. Remove the NC1 replenisher cartridge set sensor. (Two screws)
4. Remove the NC1 replenisher cartridge position sensor (upper). (Two screws)



G085867

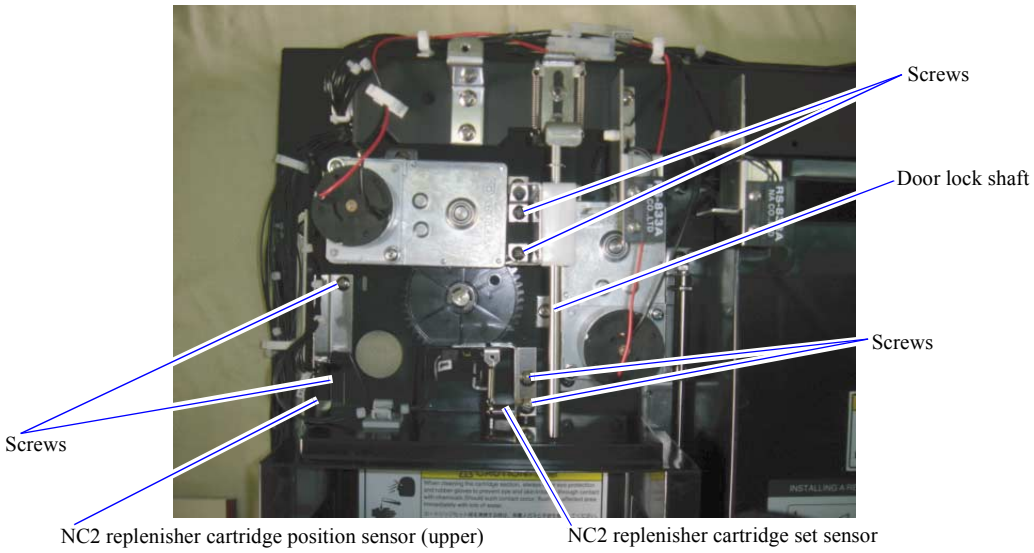
5. Remove the NC1 replenisher cartridge set. (Three screws)



G085869

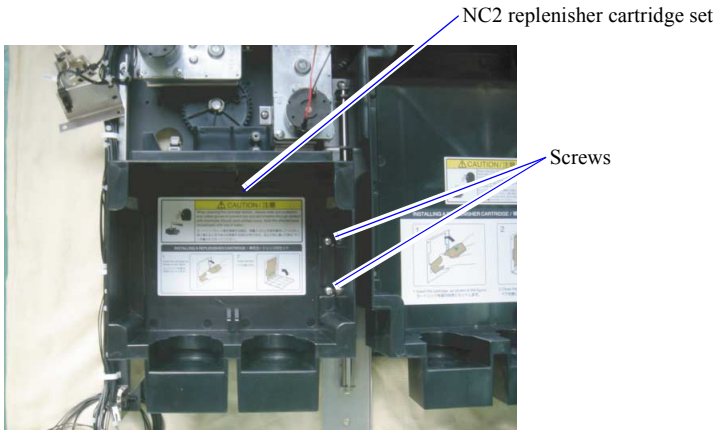
Removing the NC2 replenisher cartridge set

1. Remove the F replenisher unit.
   ☞2801
2. Remove the NC2 replenisher cartridge set sensor. (Two screws)
3. Remove the door lock shaft. (Two screws)
4. Remove the NC2 replenisher cartridge position sensor (upper). (Two screws)



G085870

5. Remove the NC2 replenisher cartridge set. (Two screws)



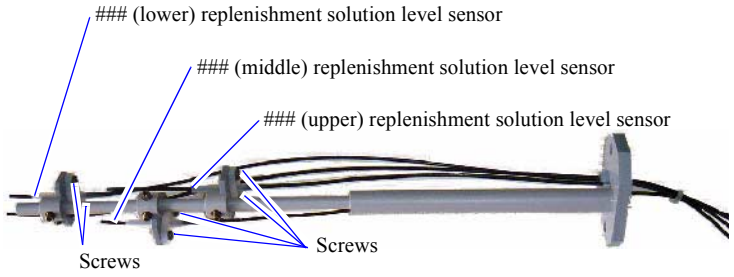
G085873

Replacing the replenishment solution level sensor

● Procedure

1. Remove the replenishment solution level sensor you want to replace. (Two screws each)
☞6111
2. Replace each replenishment solution level sensor. (Two screws each)

Example: N4R replenishment solution level sensor


(lower) replenishment solution level sensor
(middle) replenishment solution level sensor
(upper) replenishment solution level sensor
Screws
Screws

G085878

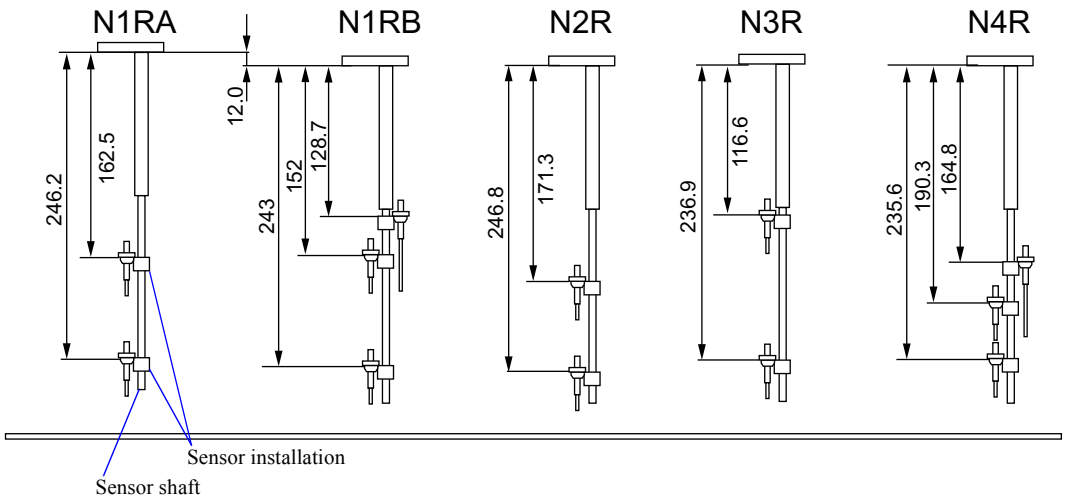
NOTE
- ### (middle) replenishment solution level sensor is installed only for N1RB and N4R.

- # # # (upper) and (lower) replenishment solution level sensors of N1RA, N2R, and N3R should be replaced together.
- # # # (middle) and (lower) replenishment solution level sensors of N1RB and N4R should be replaced together.

● Checking after replacement

1. If you loosen the sensor installation portions fixed to the sensor shafts, fix the sensor installing portions by referring to the figures below. (Two set-screws each)

Sensor installation figure (Unit:mm)



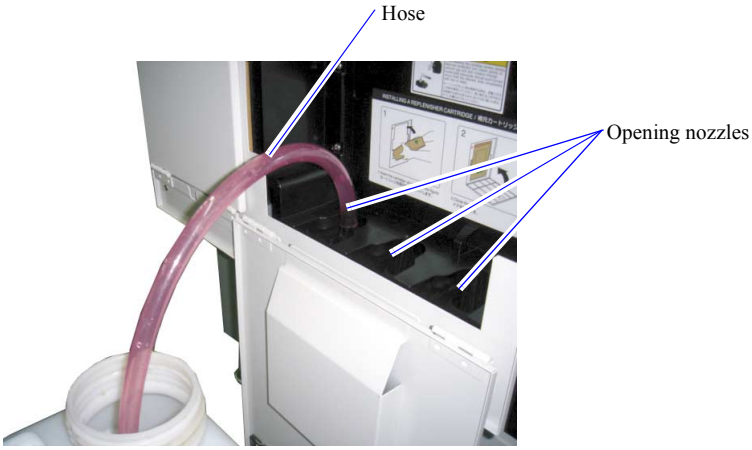
G085877

Output check of the replenishment cartridge cleaning valve and replenishment cartridge cleaning pump

- If you perform output check of replenishment cartridge cleaning valve and replenishment cartridge cleaning pump without using hoses, the water may get into the replenisher tanks and adversely affect the replenishment solution.

Procedure

1. Remove the replenishment cartridge.
2. Turn on the interlock switch (replenisher section door).
3. Lower **Replenisher Cartridge Open/Close Motor** at **Output Check**.
☞3072
4. Insert the hose of 13 mm diameter into the opening nozzle to be checked and fix the hose with adhesive tape.



G085912

5. Operate **Replenishment Cartridge Cleaning Valve** at **Output Check** while keeping pressing the **SHIFT** key to confirm if the cleaning water normally spout.
6. Remove the hose and more upwards the **Replenisher Cartridge Open/Close Motor** at **Output Check**.

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3. Mode

Mode 3011
List of Modes 3011
Mode configuration table [N] [SM] [F] 3012
Passwords 3021
Approach to the password mode 3021
Approach to the service personnel mode 3022
System program 3041
Reading the system program 3041
SWITCH 3051
DRYER SWITCH 3051
TOTALING 3061
Changing the number of processed films 3061
Check 3071
Input Check [N] 3071
INPUT CHECK [SM] 3071
Input Check [F] 3071
Output Check [N] 3072
OUTPUT CHECK [SM] 3072
Output Check [F] 3072
Version check 3075
ERROR RECORD 3077
LOADING MOTION RECORD 3079
FLOPPY 3091
Reading/Writing Data 3091
SOFTWARE UPGRADE 3093
FORMAT 3095
STANDARD SETTING 3111
STANDARD SETTING 1 3111
STANDARD SETTING 2 3112
Data initialization 3131
Data initialization 3131
REPLENISH./REFIL.WATER 3141
REFILLING WATER AMOUNT 1 [N] 3141
REFILLING WATER AMOUNT 1 [SM] 3141
REFILLING WATER AMOUNT 2 [N] 3142
REFILLING WATER AMOUNT 2 [SM] 3142
CORRECTION [SM] 3151
Replenishment/refill water 3161
Pump amount setting [F] 3161
Pump amount measurement [F] 3162

Replenishment/refill water 3163
Refill water [F] 3163
Installation operation [F] 3164
Operation mode set [F] 3165
Replenishment data initialization [F] 3166
REPLENISHER CONTROL DATA [F] 3168
Replenishment rate [F] 3169

List of Modes

NOTE

- [Password] : Protected by the password (+ – + –) Refer to ☞3021.
  You cannot access the mode without entering the password.
- [Service] : Protected with the service personnel floppy disk (**SHIFT** + – + **YES**) Refer to ☞3022.
  Displayed only in the service personnel mode.

MAIN MENU / Mode	1	2	3	4	5	6	7	8
	SWITCH	TEMPERATURE	TOTALING	Check	FILM POSITION	Program timer	REPLENISH./REFIL.WATER	FLOPPY /STANDARD SETTING*3
1	Supply SWITCH*1	TEMPERATURE DISPLAY	TODAY'S ROLLS	INPUT Check		Date	Supply	FLOPPY DISK
2	DISPLAY CONTRAST	Password SOLUTION TEMP. SETTING	TOTAL ROLLS	Service VERSION Checking		DATE AND TIME SETTING	REFILLING WATER	Service STANDARD SETTING 1
3	Password BUZZER VOLUME	Password THERMOSENSOR CALIBRATION		Service ERROR RECORD		Program timer SETTING	Service REFILLING WATER AMOUNT 1	Service STANDARD SETTING 2
4	Service Dry SWITCH			Service OUTPUT Check		MAINTENANCE DAY SETTING	Service REFILLING WATER AMOUNT 2	Service DATA INITIALIZATION
5				Option DIGITAL FLOWMETER*4			Service CORRECTION*2	
6				Service MOTION RECORD			Service Adding water*5	
7							Service Setting operation*5	
8							Service Operation mode*5	
9							Service Supply data Initialization *5	

*1. Appears only with (N) specification.
*2. Appears only with (SM) specification.

*3. **STANDARD SETTING** appears only when the service personnel password is input.
*4. Appears only when setting **DIGITAL FLOWMETER** to **ON** in **STANDARD SETTING 2**.
*5. Appears only with (F) specification.

Mode configuration table [N] [SM] [F]

NOTE

- (OP) : Protected by the password (+ – + –) Refer to ☞ 3021.
  You cannot access the mode without entering the password.
- (SP) : Protected with the service personnel floppy disk (**SHIFT** + – + **YES**) Refer to ☞ 3022.
  Displayed only in the service personnel mode.

SWITCH

Item		Reference
DISPLAY CONTRAST	5-15	
BUZZER (OP)	1-3	
DRYER SWITCH (SP)	AUTO/ON	☞ 3051

TEMPERATURE

Item		Reference
TEMPERATURE DISPLAY	CD, BL	
	FIX, STB	
	DRY	
	ROOM TEMP. HUMID. (F) *1	
SOLUTION TEMP. SETTING (OP)	CD, BL	
	FIX, STB	
	DRY1, DRY2	
THERMOSENSOR CALIBRATION (OP)	CD, BL	
	FIX, STB	
	ROOM TEMP. (F)	

*1. Display only when the environmental temperature and humidity meter turns on.

TOTALING

Item	Reference
TODAY'S ROLLS	☞ 3061
TOTAL ROLLS	

Check

Item		Reference
INPUT CHECK	LOADING	☞ 3071
	PROCESSOR	
VERSION CHECK (OP)	MAIN (###)	☞ 3075
ERROR RECORD (SP) *1	NUMBER, DATE, TIME, ERROR	☞ 3077
OUTPUT CHECK (SP)	LOADING	☞ 3072
	PROCESSOR	
Digital flowmeter	##.#mL/min	Option
MOTION RECORD (SP)	NORMAL MOTION RECORD	☞ 3079
	ERROR MOTION RECORD	
	SENSOR RECORD (GRAPHICS)	

*1. Displays the details of the error by **SHIFT**.

PROGRAM TIMER MENU

Item		Reference
Date	DATE ##/##/## (YY/MM/DD)	

Item		Reference
	DAY *DAY	
	TIME ##:##:##	
DATE AND TIME SETTING	DATE ##/##/## (YY/MM/DD)	
	DAY *DAY	
	TIME ##:##:##	
PROGRAM TIMER SETTING	NO. ON/OFF DAY TIME *1	
MAINTENANCE DAY SETTING	*DAY	

*1. The settings of 20 patterns are possible.

REPLENISH./REFIL.WATER (N/SM specification)

Item		Reference
REPLENISHMENT (N)	TOTAL REPLENISH. AMOUNT	
	MANUAL REPLENISHMENT	
	BASIC REPL. AMOUNT (OP)	
	PUMP AMOUNT SETTING (OP)	
	PUMP AMOUNT MEASUREMENT (OP)	
	REPLENISHMENT LACK TIME (OP)	
REPLENISHMENT (SM)	TOTAL/ REPL. REMAINS	
	BASIC REPL. AMOUNT (OP)	
	PUMP AMOUNT SETTING (OP)	
	PUMP AMOUNT MEASUREMENT (OP)	
	REPLENISHMENT RATE (SP)	
	SM FORCED REPL. (SP)	
REFILLING WATER	REFILL WATER? (Y/N)	
REFILLING WATER AMOUNT 1 (N) (SP)		☞3141
REFILLING WATER AMOUNT 1 (SM) (SP)		
REFILLING WATER AMOUNT 2 (N) (SP)		☞3142
REFILLING WATER AMOUNT 2 (SM) (SP)		
CORRECTION (SM) (SP)	REPLENISHMENT CORRECTION RATE	☞3151
	REFILLING WATER LEVEL 2	

REPLENISH./REFILL WATER (F)

Item		Reference
Supply	PUMP AMOUNT SETTING*1	☞3161
	PUMP AMOUNT MEASUREMENT*1	☞3162
	Environmental condition	
	REPLENISHER CONTROL DATA (SP)	☞3168
	REPLENISHMENT RATE (SP)	☞3169
REFILL WATER (SP)	Evaporation rate at standby 0	☞3163
	Evaporation rate (running)	
	Evaporation rate (power off)	
	Auto Cleaning Amount Setting	
	Refill water record	
INSTALLATION OPERATION (SP)	Auto mixing	☞3164
	Air removal	
	Replenisher mixing	
OPERATION MODE SET (SP)	Auto refilling water	☞3165
	THERMOHYGROMETER	

Item		Reference
SUPPLY DATA INITIALIZATION (SP)	NC1	☞3166
	NC2	
	NC1 + NC2	

*1. Cannot change under the user level.

FLOPPY/STANDARD SETTING

Item			Remarks
Floppy disk	READING/WRITING	READ (FROM FLOPPY DISK)	☞3091
		WRITE (TO FLOPPY DISK)	
	SOFTWARE UPGRADE		☞3093
	FORMAT		☞3095
STANDARD SETTING 1 (SP)			☞3111
STANDARD SETTING 2 (SP)			☞3112
DATA INITIALIZATION (SP)			☞3131

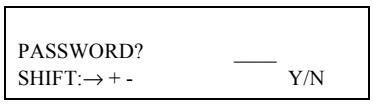
Approach to the password mode

● EXPLANATION

- When attempting to approach to the mode, password inputting may be needed.
  The mode necessary to input password is the password mode. Refer to ☞3011 List of Modes.

● Operation

1. Select the password mode, and press **YES**.



2. Enter the password.
   +→−→+→−→**YES**

NOTE
- The content of input password is not displayed.

● How to release the password mode

- With the circuit breaker OFF or when proceeding to the program timer after the close down checks, the service personnel mode is released.

Approach to the service personnel mode

EXPLANATION

- To approach to the service personnel mode, service personnel floppy disk and password input are necessary.
  The service personnel mode will not appear until the protection is released by the service personnel floppy disk and inputting password. Refer to ☞ 3011 List of Modes.

Operation

1. Insert the service personnel floppy disk into the floppy disk drive.
2. Press **MODE** to display the MAIN MENU display.

```
     ***  MAIN MENU  ***
SWITCHES
↑↓                      Y/N
```

3. Enter the password.
   SHIFT → + → − → + → **YES**

IMPORTANT

- Input the password within five seconds. If the access lamp of floppy disk drive lights when pressing **YES** of the end of the password, it means the password could have been input within five seconds.
  If the access lamp does not light, enter the password by starting with **SHIFT** again.
- When the password is recognized correctly, the letter **S** appears in the arrow part of the display.
- Password input is not accepted while processing film.

```
S    ***  MAIN MENU  ***
SWITCHES
↑↓                      Y/N
```

How to release the service personnel mode

- With the circuit breaker OFF or when proceeding to the program timer after the close down checks, the service personnel mode is released.

Reading the system program

● EXPLANATION

- It switches the displayed language and reads the system program at replacing the main control PCB.

● Operation

1. When the circuit breaker is ON, turn OFF the circuit breaker.
2. Insert the system program floppy disk into the floppy disk drive.
3. Turn on the circuit breaker.

NOTE

- Reading the system program starts.
- When the displayed value achieves 100%, reading is complete. (It takes approx. three minutes.)

```
SOFT WARE IS BEING UPGRADE

                          ##%
```

4. With an alarm sound, the message **No. 51-01 SET DATE** & **TIME** appears.

```
〈 51-01〉
SET DATE & TIME
                          (N)
```

5. Release the alarm and carry out the start up checks.

NOTE

- After releasing the alarm using **YES** + **NO**, the START CHECK display appears.

6. Read the system data. Refer to ☞ 3012.
7. Set the date and time. Refer to ☞ 3012.

DRYER SWITCH

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → SWITCHES: **YES** → DRYER SWITCH: **YES**

```
      *** DRYER SWITCH ***
DRYER                    AUTO
+ -                      Y/N
```


● Operation

- Using + or – switches **AUTO** and **ON**.
- Register by **YES**.

● EXPLANATION

● AUTO

Dryer operates when starting the film processing.

● ON

Dryer operates continuously even when the film is not processed.

NOTE

- With the circuit breaker OFF or when proceeding to the program timer after the close down checks, the setting is reset to **AUTO**.
- When setting to **ON**, dryer does not stop even though the drive is turned off.

Changing the number of processed films

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → TOTALING: **YES**

```
      *** TOTALING ***
TODAY'S ROLLS
↑↓                          Y/N
```

● Operation

- Using ↑ or ↓ switches **TODAY'S ROLLS** and **TOTAL ROLLS**.
- Pressing **YES** leads the operation forward.

● EXPLANATION

- The number of processed films can be changed voluntarily.

```
     ** TODAY'S ROLLS **
135-12    ____ 135-18    ____
↑ ↓ + – (RESET: SHIFT+NO)
```

- Using ↑ or ↓ switches the film type.
- Using + or – changes the number of processed films.
- Register by **YES**.

Input Check [N]

Description for each specification

For the specifications other than [N] specification, this section only gives description that differs from that for [N] specification. See below for the description for each specification.

Reference	
☞ INPUT CHECK [SM]	☞ Input Check [F]

● INPUT CHECK

Item	Specification	Reference
Loading section	Common to all specifications	☞ Loading box (common to all specifications)
Processor section	N specification	☞ Processor section (differs for each specification)
	SM specification	☞ Processor (SM)
	F specification	☞ Processor (F)

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → CHECK: **YES** → INPUT CHECK: **YES**

```
    ***  INPUT CHECK  ***
LOADING
↑↓                        Y/N
```

● Operation

- Using ↑ or ↓ switches **LOADING** and **PROCESSOR**.
- Pressing **YES** leads the operation forward.
- A buzzer sounds when the displayed sensor or limit switch turns CLOSE or ON.

```
    ** INPUT (LOADING) **
135 FILM SENSOR          OPEN
↑↓                       (N)
```

- Using ↑ or ↓ switches the check item.
- Selecting **NO** returns to **INPUT CHECK**.

● EXPLANATION

● Loading box (common to all specifications)

No.	Display		Status	
1	CLOSE/OPEN	135 film sensor	CLOSE	When 135 film is detected
2	CLOSE/OPEN	Film sensor	CLOSE	When the film is detected.
3	ON/OFF	Film jam sensor	ON	When the sensor is turned CLOSE by the detect plate
4	CLOSE/OPEN	FILM CARTRIDGES SENSOR	CLOSE	When the intermediate cartridge is set
5	CLOSE/OPEN	Pressure sensor	CLOSE	Film cartridge holder is positioned lower

No.	Display		Status	
6	CLOSE/OPEN	Film cutter sensor	CLOSE	When the film cutter is set
7	CLOSE/OPEN	Loading cover sensor	CLOSE	When the loading cover is closed

- **Processor section (differs for each specification)**

No.	Display		Status	
1	ON/OFF	CD circulation pump	ON	When rotating correctly
2	ON/OFF	BL circulation pump	ON	When rotating correctly
3	ON/OFF	FIX1 circulation pump	ON	When rotating correctly
4	ON/OFF	FIX2 circulation pump	ON	When rotating correctly
5	ON/OFF	STB1 circulation pump	ON	When rotating correctly
6	ON/OFF	STB2 circulation pump	ON	When rotating correctly
7	ON/OFF	STB3 circulation pump	ON	When rotating correctly
8	ON/OFF	Rack stopper sensor	ON	When the rack stopper is set.
9	ON/OFF	Top cover sensor	ON	When the top cover is closed
10	ON/OFF	SAFETY THERMOSTAT	ON	Normal
11	ON/OFF	SAFETY THERMOSTAT(DRYER)	ON	Normal
12	ON/OFF	SOLUTION LEVEL	OFF	When the solution level is too low
13	ON/OFF	CD REFILLING LEVEL	OFF	When the solution level is too low
14	ON/OFF	BL REFILLING LEVEL	OFF	When the solution level is too low
15	ON/OFF	FIX1 REFILLING LEVEL	OFF	When the solution level is too low
16	ON/OFF	FIX2 REFILLING LEVEL	OFF	When the solution level is too low
17	ON/OFF	STB1 REFILLING LEVEL	OFF	When the solution level is too low
18	ON/OFF	STB2 REFILLING LEVEL	OFF	When the solution level is too low
19	ON/OFF	STB3 REFILLING LEVEL	OFF	When the solution level is too low
20	ON/OFF	Drive switch	ON	When the drive switch is ON
21	ON/OFF	DRIVE MOTOR SPEED SIGNAL	OFF	When the speed setting of DS1-8 drive motor is LOW (specifications other than CN-16L and CN-16S) ☞6311
22	ON/OFF	VOLTAGE SETTING 100	OFF	The voltage set with DS1 on the Power PCB 1 gets ON ☞6001
23	ON/OFF	VOLTAGE SETTING 110-115	OFF	
24	ON/OFF	VOLTAGE SETTING 120	OFF	
25	ON/OFF	VOLTAGE SETTING 200-208	OFF	
26	ON/OFF	VOLTAGE SETTING 220-230	OFF	
27	ON/OFF	VOLTAGE SETTING 240	OFF	
28	ON/OFF	VOLTAGE SETTING ERROR	OFF	When the input voltage and the setting voltage of DS1 are different
29	ON/OFF	CD REPLENISHER LEVEL	OFF	When no replenishment solution remains
30	ON/OFF	BL REPLENISHER LEVEL	OFF	When no replenishment solution remains
31	ON/OFF	FIX REPLENISHER LEVEL	OFF	When no replenishment solution remains
32	ON/OFF	WL REPLENISHER LEVEL	OFF	When no replenishment solution remains
33	ON/OFF	STB REPLENISHER LEVEL	OFF	When no replenishment solution remains
34	ON/OFF	CD WASTE SOLN. LEVEL	ON	When the waste solution tank is full
35	ON/OFF	BL WASTE SOLN. LEVEL	ON	When the waste solution tank is full
36	ON/OFF	FIX WASTE SOLN. LEVEL	ON	When the waste solution tank is full
37	ON/OFF	STB WASTE SOLN. LEVEL	ON	When the waste solution tank is full
38	ON/OFF	SUPPLY TANK LEVEL	OFF	When no water remains in the refilling water tank
39		50/60Hz		Displays the frequency of input power supply.

No.	Display		Status	
40	ON/OFF	Dryer fan	OFF	When the dryer fan stops

INPUT CHECK [SM]

Description for each specification

For the specifications other than [N] specification, this section only gives description that differs from that for [N] specification. See below for the description for each specification.

Reference	
☞ Input Check [N]	☞ Input Check [F]

● Processor (SM)

No.	Display		Status	
1	ON/OFF	CD circulation pump	ON	When rotating correctly
2	ON/OFF	BL circulation pump	ON	When rotating correctly
3	ON/OFF	FIX1 circulation pump	ON	When rotating correctly
4	ON/OFF	FIX2 circulation pump	ON	When rotating correctly
5	ON/OFF	STB1 circulation pump	ON	When rotating correctly
6	ON/OFF	STB2 circulation pump	ON	When rotating correctly
7	ON/OFF	STB3 circulation pump	ON	When rotating correctly
8	ON/OFF	Rack stopper sensor	ON	When the top cover is closed
9	ON/OFF	Top cover sensor	ON	Normal
10	ON/OFF	SAFETY THERMOSTAT	ON	Normal
11	ON/OFF	SAFETY THERMOSTAT(DRYER)	ON	Normal
12	ON/OFF	SOLUTION LEVEL	OFF	When the solution level is too low
13	ON/OFF	CD REFILLING LEVEL	OFF	When the solution level is too low
14	ON/OFF	BL REFILLING LEVEL	OFF	When the solution level is too low
15	ON/OFF	FIX1 REFILLING LEVEL	OFF	When the solution level is too low
16	ON/OFF	FIX2 REFILLING LEVEL	OFF	When the solution level is too low
17	ON/OFF	STB1 REFILLING LEVEL	OFF	When the solution level is too low
18	ON/OFF	STB2 REFILLING LEVEL	OFF	When the solution level is too low
19	ON/OFF	STB3 REFILLING LEVEL	OFF	When the solution level is too low
20	ON/OFF	Drive switch	ON	When the drive switch is ON
21	ON/OFF	DRIVE MOTOR SPEED SIGNAL	OFF	When the speed setting of DS1-8 drive motor is LOW (specifications other than CN-16L and CN-16S) ☞ 6311
22	ON/OFF	VOLTAGE SETTING 100	ON	The voltage set with DS1 on the Power PCB 1 gets ON ☞ 6001
23	ON/OFF	VOLTAGE SETTING 110-115	OFF	
24	ON/OFF	VOLTAGE SETTING 120	OFF	
25	ON/OFF	VOLTAGE SETTING 200-208	OFF	
26	ON/OFF	VOLTAGE SETTING 220-230	OFF	
27	ON/OFF	VOLTAGE SETTING 240	OFF	
28	ON/OFF	VOLTAGE SETTING ERROR	OFF	When the input voltage and the setting voltage are different
29	ON/OFF	CD-A REPL. PUMP SENSOR	ON	Home position
30	ON/OFF	CD-B REPL. PUMP SENSOR	ON	Home position
31	ON/OFF	CD-C REPL. PUMP SENSOR	ON	Home position
32	ON/OFF	CD-W WATER PUMP SENSOR	ON	Home position
33	ON/OFF	BL REPL. PUMP SENSOR	ON	Home position
34	ON/OFF	FIX REPL. PUMP SENSOR	ON	Home position
35	ON/OFF	FIX-W WATER PUMP SENSOR	ON	Home position
36	ON/OFF	STB REPL. PUMP SENSOR	ON	Home position

No.	Display		Status	
37	ON/OFF	STB-W water supply pump sensor	ON	Home position
38	ON/OFF	REPL. PACKAGE SE.(F1)	ON	When the replenishment package is set
39	ON/OFF	REPL. PACKAGE SE.(F2)	ON	When the replenishment package is set
40	ON/OFF	REPL.SOLN. SE.(CD-A)	ON	When no replenishment solution remains
41	ON/OFF	REPL.SOLN. SE.(CD-B)	ON	When no replenishment solution remains
42	ON/OFF	REPL.SOLN. SE.(CD-C)	ON	When no replenishment solution remains
43	ON/OFF	REPL.SOLN. SE.(BL)	ON	When no replenishment solution remains
44	ON/OFF	REPL.SOLN. SE.(FIX)	ON	When no replenishment solution remains
45	ON/OFF	REPL.SOLN. SE.(STB)	ON	When no replenishment solution remains
46	ON/OFF	STB REPLENISHER LEVEL	OFF	When no replenishment solution remains
47	ON/OFF	CD WASTE SOLN. LEVEL	ON	When the waste solution tank is full
48	ON/OFF	BL WASTE SOLN. LEVEL	ON	When the waste solution tank is full
49	ON/OFF	FIX WASTE SOLN. LEVEL	ON	When the waste solution tank is full
50	ON/OFF	STB WASTE SOLN. LEVEL	ON	When the waste solution tank is full
51	ON/OFF	SUPPLY TANK LEVEL	OFF	When the solution level is too low
52		50/60Hz		Displays the frequency of input power supply.
53	ON/OFF	Dryer fan	OFF	When the dryer fan stops

Input Check [F]

Description for each specification

For the specifications other than [N] specification, this section only gives description that differs from that for [N] specification. See below for the description for each specification.

Reference	
☞ Input Check [N]	☞ INPUT CHECK [SM]

● Processor (F)

No.	Display		Status	
1	ON/OFF	N1 CIRCULATION PUMP	ON	When rotating correctly
2	ON/OFF	N2 CIRCULATION PUMP	ON	When rotating correctly
3	ON/OFF	N31 CIRCULATION PUMP	ON	When rotating correctly
4	ON/OFF	N32 CIRCULATION PUMP	ON	When rotating correctly
5	ON/OFF	N41 CIRCULATION PUMP	ON	When rotating correctly
6	ON/OFF	N42 CIRCULATION PUMP	ON	When rotating correctly
7	ON/OFF	N43 CIRCULATION PUMP	ON	When rotating correctly
8	ON/OFF	Rack stopper sensor	ON	When the top cover is closed
9	ON/OFF	Top cover sensor	ON	Normal
10	ON/OFF	SAFETY THERMOSTAT	ON	Normal
11	ON/OFF	SAFETY THERMOSTAT(DRYER)	ON	Normal
12	ON/OFF	SOLUTION LEVEL	OFF	When the solution level is too low
13	ON/OFF	N1 SOLN LEVEL	OFF	When the solution level is too low
14	ON/OFF	N2 SOLN LEVEL	OFF	When the solution level is too low
15	ON/OFF	N31 SOLN LEVEL	OFF	When the solution level is too low
16	ON/OFF	N32 SOLN LEVEL	OFF	When the solution level is too low
17	ON/OFF	N41 SOLN LEVEL	OFF	When the solution level is too low
18	ON/OFF	N42 SOLN LEVEL	OFF	When the solution level is too low
19	ON/OFF	N43 SOLN LEVEL	OFF	When the solution level is too low
20	ON/OFF	Drive switch	ON	When the drive switch is ON
21	ON/OFF	DRIVE MOTOR SPEED SIGNAL	OFF	When the speed setting of DS1-8 drive motor is LOW (specifications other than CN-16L and CN-16S) ☞ 6311
22	ON/OFF	VOLTAGE SETTING 100	ON	The voltage set with DS1 on the Power PCB 1 gets ON ☞ 6001
23	ON/OFF	VOLTAGE SETTING 110-115	OFF	
24	ON/OFF	VOLTAGE SETTING 120	OFF	
25	ON/OFF	VOLTAGE SETTING 200-208	OFF	
26	ON/OFF	VOLTAGE SETTING 220-230	OFF	
27	ON/OFF	VOLTAGE SETTING 240	OFF	
28	ON/OFF	VOLTAGE SETTING ERROR	OFF	When the input voltage and the setting voltage are different
29	ON/OFF	INTERLOCK (REPL SEC 1)	ON	When replenisher section door 1 is closed
30	ON/OFF	INTERLOCK (REPL SEC 2)	ON	When replenisher section door 2 is closed
31	ON/OFF	NC1 replenisher cartridge set sensor	ON	When the NC1 replenisher cartridge is detected.
32	ON/OFF	NC2 replenisher cartridge set sensor	ON	When the NC2 replenisher cartridge is detected.
33	ON/OFF	NC1 replenisher cartridge position sensor (upper)	ON	When the NC1 replenisher cartridge is set.

No.	Display		Status	
34	ON/OFF	NC1 replenisher cartridge position sensor (lower)	ON	When the NC1 replenisher cartridge is opened.
35	ON/OFF	NC2 replenisher cartridge position sensor (upper)	ON	When the NC2 replenisher cartridge is set.
36	ON/OFF	NC2 replenisher cartridge position sensor (lower)	ON	When the NC2 replenisher cartridge is opened.
37	ON/OFF	N1RA (upper) replenishment solution level sensor	ON	When the replenishment solution is detected
38	ON/OFF	N1RA (lower) replenishment solution level sensor	ON	When the replenishment solution is detected
39	ON/OFF	N2 (upper) replenishment solution level sensor	ON	When the replenishment solution is detected
40	ON/OFF	N2R (lower) replenishment solution level sensor	ON	When the replenishment solution is detected
41	ON/OFF	N3R (upper) replenishment solution level sensor	ON	When the replenishment solution is detected
42	ON/OFF	N3R (lower) replenishment solution level sensor	ON	When the replenishment solution is detected
43	ON/OFF	N4R (upper) replenishment solution level sensor	ON	When the replenishment solution is detected
44	ON/OFF	N4R (middle) replenishment solution level sensor	ON	When the replenishment solution is detected
45	ON/OFF	N4R (lower) replenishment solution level sensor	ON	When the replenishment solution is detected
46	ON/OFF	N1RB (upper) replenishment solution level sensor	ON	When the replenishment solution is detected
47	ON/OFF	N1RB (middle) replenishment solution level sensor	ON	When the replenishment solution is detected
48	ON/OFF	N1RB (lower) replenishment solution level sensor	ON	When the replenishment solution is detected
49	ON/OFF	CD WASTE SOLN. LEVEL	ON	When the waste solution tank is full
50	ON/OFF	BL WASTE SOLN. LEVEL	ON	When the waste solution tank is full
51	ON/OFF	FIX WASTE SOLN. LEVEL	ON	When the waste solution tank is full
52	ON/OFF	STB WASTE SOLN. LEVEL	ON	When the waste solution tank is full
53	ON/OFF	Replenishment solution level sensor (upper water level)	ON	When the replenishment solution is detected
54	ON/OFF	Replenishment solution level sensor (lower water level)	ON	When the replenishment solution is detected
55		50/60Hz		Displays the frequency of input power supply.
56	ON/OFF	Dryer fan	OFF	When the dryer fan stops

Output Check [N]

Description for each specification

For the specifications other than [N] specification, this section only gives description that differs from that for [N] specification. See below for the description for each specification.

Reference	
☞ OUTPUT CHECK [SM]	☞ Output Check [F]

● Output Check

Item	Specification	Reference
Loading section	Common to all specifications	☞ Loading box (common to all specifications)
Processor section	N specification	☞ Processor (differs for each specification)
	SM specification	☞ Processor (SM)
	F specification	☞ Processor (F)

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → CHECK: **YES** → OUTPUT CHECK: **YES**

```
    ***  OUTPUT CHECK  ***
LOADING
↑↓                      Y/N
```

● Operation

- Using ↑ or ↓ switches **LOADING** and **PROCESSOR**.
- Pressing **YES** leads the operation forward.
- The displayed electrical part can be operated.

```
    ** OUTPUT (LOADING)**
LOADING COVER LOCK SOLENOID
↑↓                      Y/N
```

- Using ↑ or ↓ switches the check item.
- Selecting **NO** returns to **INPUT CHECK**.

● EXPLANATION

● Loading box (common to all specifications)

No.	Display	Operation
1	LOADING COVER LOCK SOLENOID	Operates while pressing **YES**.
2	PRESSURE SOLENOID	Operates while pressing **YES**.
3	PRESSURE ENABLE SIGNAL	The signal is output while pressing **YES**.
4	READY LAMP (RED)	Lights while pressing **YES**.
5	READY LAMP (GREEN)	Lights while pressing **YES**.
6	BUZZER VOLUME	A buzzer sounds while pressing **YES**.

NOTE

- PRESSURE ENABLE SIGNAL

- PRESSURE ENABLE SIGNAL is the signal output to turn on the pressure solenoid as a hardware.
  Although the pressure solenoid is turned on by receiving the film rear end detecting signal from the pressure sensor by a software in cutting the film rear end normally, it is also controlled by a hardware so as to turn the pressure solenoid on without fail.
- At Output Check, the pressure solenoid operates when turning the pressure sensor to CLOSE with pressing **YES**.

● Processor (differs for each specification)

No.	Display	Operation
1	CD HEATER	ON while pressing **YES**
2	BL HEATER	ON while pressing **YES**
3	STB HEATER	ON while pressing **YES**
4	COOLING FAN	Operates while pressing **YES**.
5	DRYER HEATER 1	ON while pressing **YES**
6	DRYER HEATER 2	ON while pressing **YES**
7	DRYER FAN	Operates while pressing **YES**.
8	CIRCULATION PUMP	Operates while pressing **YES**.
9	AERATION PUMP	Operates while pressing **YES**.
10	COOL. WATER SOLENOID VALVE	Operates while pressing **YES**.
11	CD REFILLING WATER PUMP	Operates for 10 seconds by pressing **YES**.
12	BL REFILLING WATER PUMP	Operates for 10 seconds by pressing **YES**.
13	FIX1 REFILLING WATER PUMP	Operates for 10 seconds by pressing **YES**.
14	FIX2 REFILLING WATER PUMP	Operates for 10 seconds by pressing **YES**.
15	STB1 REFILLING WATER PUMP	Operates for 10 seconds by pressing **YES**.
16	STB2 REFILLING WATER PUMP	Operates for 10 seconds by pressing **YES**.
17	STB3 REFILLING WATER PUMP	Operates for 10 seconds by pressing **YES**.
18	CLEANING PUMP	Operates for 10 seconds by pressing **YES**.
19	CD REPLENISHER PUMP	Operates while pressing **YES**.
20	BL REPLENISHER PUMP	Operates while pressing **YES**.
21	FIX REPLENISHER PUMP	Operates while pressing **YES**.
22	WL REPLENISHER PUMP	Operates while pressing **YES**.
23	STB REPLENISHER PUMP	Operates while pressing **YES**.
24	EXHAUST FAN	Operates while pressing **YES**.

OUTPUT CHECK [SM]

Description for each specification

For the specifications other than [N] specification, this section only gives description that differs from that for [N] specification. See below for the description for each specification.

Reference	
☞ Output Check [N]	☞ Output Check [F]

● Processor (SM)

No.	Display	Operation
1	CD HEATER	ON while pressing **YES**
2	BL HEATER	ON while pressing **YES**
3	STB HEATER	ON while pressing **YES**
4	COOLING FAN	Operates while pressing **YES**.
5	DRYER HEATER 1	ON while pressing **YES**
6	DRYER HEATER 2	ON while pressing **YES**
7	DRYER FAN	Operates while pressing **YES**.
8	CIRCULATION PUMP	Operates while pressing **YES**.
9	AERATION PUMP	Operates while pressing **YES**.
10	COOL. WATER SOLENOID VALVE	Operates while pressing **YES**.
11	BL REFILLING WATER PUMP	Operates while pressing **YES**.
12	FIX1 REFILLING WATER PUMP	Operates while pressing **YES**.
13	STB1 REFILLING WATER PUMP	Operates while pressing **YES**.
14	STB2 REFILLING WATER PUMP	Operates while pressing **YES**.
15	CLEANING PUMP	Operates while pressing **YES**.
16	CD-A REPLENISHER PUMP *[*1]	Operates while pressing **YES**.
17	CD-B REPLENISHER PUMP *[*1]	Operates while pressing **YES**.
18	CD-C REPLENISHER PUMP *[*1]	Operates while pressing **YES**.
19	CD-W WATER SUPPLY PUMP *[*1]	Operates while pressing **YES**.
20	BL REPLENISHER PUMP *[*1]	Operates while pressing **YES**.
21	FIX REPLENISHER PUMP *[*1]	Operates while pressing **YES**.
22	FIX-W WATER SUPPLY PUMP *[*1]	Operates while pressing **YES**.
23	STB REPLENISHER PUMP *[*1]	Operates while pressing **YES**.
24	STB-W WATER SUPPLY PUMP *[*1]	Operates while pressing **YES**.
25	EXHAUST FAN	Operates while pressing **YES**.

*1. At the output check, the mark ∗ appears when the pump home sensor has detected the home position while the pump is rotating.

Output Check [F]

Description for each specification

For the specifications other than [N] specification, this section only gives description that differs from that for [N] specification. See below for the description for each specification.

Reference	
☞ Output Check [N]	☞ OUTPUT CHECK [SM]

● Processor (F)

No.	Display	Operation
1	N1 HEATER	ON while pressing **YES**
2	N2 HEATER	ON while pressing **YES**
3	N4 HEATER	ON while pressing **YES**
4	COOLING FAN	Operates while pressing **YES**.
5	DRYER HEATER 1	ON while pressing **YES**
6	DRYER HEATER 2	ON while pressing **YES**
7	DRYER FAN	Operates while pressing **YES**.
8	CIRCULATION PUMP	Operates while pressing **YES**.
9	AERATION PUMP	Operates while pressing **YES**.
10	COOL. WATER SOLENOID VALVE	Operates while pressing **YES**.
11	NC1JÓ°À° ã¸ ＊ ＊*1*4	Operates while pressing **YES**.
12	NC1JÓ°À° º~ ＊ ＊*1*4	Operates while pressing **YES**.
13	NC2JÓ°À° ã¸ ＊ ＊*1*4	Operates while pressing **YES**.
14	NC2JÓ°À° º~ ＊ ＊*1*4	Operates while pressing **YES**.
15	N1RA CARTRIDGE CLEANING VALVE*2*5	Operates while pressing **YES**.
16	N2R CARTRIDGE CLEANING VALVE*2*5	Operates while pressing **YES**.
17	N3R CARTRIDGE CLEANING VALVE*2*5	Operates while pressing **YES**.
18	N4R CARTRIDGE CLEANING VALVE*2*5	Operates while pressing **YES**.
19	N1RB CARTRIDGE CLEANING VALVE*2*5	Operates while pressing **YES**.
20	N1W ADDING WATER VALVE*3	Operates while pressing **YES**.
22	N2W ADDING WATER VALVE*3	Operates while pressing **YES**.
23	N3W ADDING WATER VALVE*3	Operates while pressing **YES**.
24	N42W ADDING WATER VALVE*3	Operates while pressing **YES**.
25	N43W ADDING WATER VALVE*3	Operates while pressing **YES**.
26	N1RA AGITATION VALVE*2	Operates while pressing **YES**.
27	N1RB AGITATION VALVE*2	Operates while pressing **YES**.
28	N1RA REPLENISHER PUMP	Operates while pressing **YES**.
29	N2R REPLENISHER PUMP	Operates while pressing **YES**.
30	N3R REPLENISHER PUMP	Operates while pressing **YES**.
31	N4R REPLENISHER PUMP	Operates while pressing **YES**.
32	N1RB REPLENISHER PUMP	Operates while pressing **YES**.
33	N3W CASCADE REPLENISHER PUMP	Operates while pressing **YES**.
34	AUTO CLEANING VALVE *2	Operates while pressing **YES**.
35	EXHAUST FAN	Operates while pressing **YES**.

*1. When the replenisher cartridge is set, before operating the message **The replenisher cartridge is set.** appears.
*2. When operating the cleaning valve, agitation valve and auto cleaning valve while pressing the **SHIFT** key, the replenisher cartridge cleaning pump operates at the same time.
*3. When operating the adding water valve while pressing the **SHIFT** key, the adding water replenisher pump operates at the same time.
*4. When the replenisher cartridge position sensor (upper) is ON, the left ∗ turns ON. When the replenisher cartridge position sensor (lower) is ON, the right ∗ turns ON.

*5. If the cleaning water gets into a replenisher tank, the amount of replenishment solution changes. Insert a hose into the opening nozzle and execute Output Check preventing the water getting into the tank.
When you insert a hose into the opening nozzle, we recommend you to operate **Replenisher Cartridge Open/Close Motor** and lower the replenisher cartridge set section.
For details, refer to ☞2805.

Version check

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → CHECK: **YES** → VERSION CHECK: **YES**

```
    *** VERSION CHECK ***
MAIN          ____   (______)
                          (N)
```

● EXPLANATION

- The version of the system program is displayed.
  In ( ), the version of Boot program is displayed.

ERROR RECORD

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → CHECK: **YES** → ERROR RECORD: **YES**

```
      ** ERROR RECORD **
  1  04.03.17  08:00  030-0004
↑↓ (SHIFT)                (N)
```

● Operation

- Using ↓ or ↑ switches to the next or previous error record.
- Pressing **SHIFT** displays the message of the error.

NOTE

- To see the next or previous ERROR RECORD, press **SHIFT** to switch to the item display. And then, press ↓ or ↑ to switch.

● EXPLANATION

- Among the occurring errors, the most recent error is displayed in order from 1.
- It keeps up to 100 error records.
  When the number of errors is over 100, the oldest error is deleted and the newer one is saved.

LOADING MOTION RECORD

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → CHECK: **YES** → MOTION RECORD: **YES**

```
   ** LOADING MOTION RECORD **
NORMAL MOTION RECORD
↑↓                          Y/N
```


● Operation

- Using ↑ or ↓ switches **NORMAL MOTION RECORD**, **ERROR MOTION RECORD** and **SENSOR RECORD (GRAPHICS)**.
- Pressing **YES** leads the operation forward.

● EXPLANATION

- The condition of the loading section in processing film is recorded.

● NORMAL MOTION RECORD

- The data of the most recent 100 leaders processed can be checked.
- The data is displayed in order from the most recent one.
- Select the processed film using ↑ or ↓.
- Pressing **SHIFT** displays the details of the processed film.

```
   *MOTION RECORD *        ___/100
DATE/TIME          __.__.__/__:__
↑↓,(SHIFT)                 (N)
```

No.	Display	Description
1	DATE/TIME __.__.__/__:__	Displays the date/time to start loading.
2	FILM _____-___._s	Displays the film type and detect time.
3	PRESSURE ON TIME ___._s	Displays the taking time from the pressure solenoid turns on until it turns off in advancing the leader card.
4	PRESS.ON→LIMIT OFF ___._s	Unused
5	PRESS.OFF→FILM DET. ___._s	Unused
6	PRESSURE SE DETECT TIME ___._s	Displays the taking time from the pressure solenoid turns on until the pressure sensor turns to CLOSE in advancing the leader card.

No.	Display	Description
7	LOADING COVER STATUS	Displays the condition of the loading cover in loading the film. ###?###?### 1 2 3 1. During the film size judgment 2. After the film size judgment, until the film detect is complete 3. From the completion of the film detect until the interval time passes ### indicates the condition of the loading cover at loading a film. • ∗ ∗ ∗ The loading cover remains closing. • – – – The loading cover remains opening. • ∗ – ∗ The loading cover is closed → opened → closed. • – ∗ – The loading cover is opened → closed → opened. • ∗ – – The loading cover is closed → opened. • – – ∗ The loading cover is opened → closed.
8	DRIVE SWITCH STATUS	Displays the condition of the drive switch. ###?###?### 1 2 3 1. During the film size judgment 2. After the film size judgment, until the film detect is complete 3. From the completion of the film detect until the interval time passes ### indicates the condition of the drive switch at loading a film. • ∗ ∗ ∗ Driving keeps to be ON. • – – – Driving keeps to be OFF. • ∗ – ∗ Driving is ON → OFF → ON. • – ∗ – Driving is OFF → ON → OFF. • ∗ – – Driving is ON → OFF. • – – ∗ Driving is OFF → ON.
9	ERROR No. ___-___	Displays the error related to loading which occurs at loading a film.

● ERROR MOTION RECORD

- It is possible to check the data of most recently processed 100 leader cards with errors related to the loading operation.
- The data is displayed in order from the most recent one.
- The displayed content is same as **NORMAL MOTION RECORD**.
- Select the processed film using ↑ or ↓.
- Pressing **SHIFT** displays the details of the processed film.

```
* ERROR RECORD *        ___/100-_
DATE/TIME          __.__.__/__:__
↑↓ (SHIFT)                  (N)
```

● SENSOR RECORD (GRAPHICS)

- It is possible to check the condition of most recently processed 10 leader cards.
- All the data is the one saved after turning on the pressure solenoid in loading the leader cards.
- The sensor displays the time of CLOSE, and the solenoid displays the ON time as bar graph.
- Select the processed film using ↑ or ↓.
- Using + or – switches the check item.
- On one page, the data for 15 seconds is displayed.
  Pressing **SHIFT** switches to the next page.

It displays up to 240 seconds by 16 pages total.

```
   * LOAD.SE.RECORD *        __/10
F
↑↓,+ -,SHIFT→,___-___s    (N)
```

Display	Operation
F	Film detect condition
S	Film pressure detect condition
LM	Unused
ON	Operation condition of pressure solenoid

Reading/Writing Data

● Display

Bringing up the display

MAIN MENU → Floppy disk → READING/WRITING

```
    *** FLOPPY DISK ***
READING/WRITING
↑↓                    Y/N
```


● Operation

```
    *** READING/WRITING ***
READ   (FROM FLOPPY DISK)
↑↓                    Y/N
```

1. Pressing **YES** displays the message **INSERT DATA FLOPPY DISK (Y)**. Then, set the floppy disk saved the data of the machine and press **YES**.
2. Select the content of data among **MAIN**, **RECORD** and **ALL** using + or – and press **YES**.

IMPORTANT

- The content of data cannot be selected when it is not in the service personnel mode. Only **MAIN** is read.

3. The date saved the data appears. If it is correct, press **YES**.
4. The data is read.

NOTE

- **No. 81-01 FLOPPY DISK READING ERROR** ☞4501 appears if the data cannot be read.

```
    *** READING/WRITING ***
WRITE (TO FLOPPY DISK)
↑↓                    Y/N
```

1. Pressing **YES** displays the message **INSERT FLOPPY DISK Y/N**. Then, set the floppy disk and press **YES**.
2. Select the content of data among **MAIN**, **RECORD** and **ALL** to save using + or – and press **YES**.

IMPORTANT

- The content of data cannot be selected when it is not in the service personnel mode. **ALL** is forced to be selected for the data to be written.

3. The data is written.

NOTE

- **No. 82-01 FLOPPY DISK WRITING ERROR** ☞4501 appears if the data cannot be written.

EXPLANATION

Data to save

DATA	Save item
MAIN	DISPLAY CONTRAST
	BUZZER VOLUME
	DRYER SWITCH
	SOLUTION TEMP. SETTING
	TOTAL DATA
	PROGRAM TIMER SETTING
	MAINTENANCE DAY SETTING
	TOTAL REPLENISH. AMOUNT
	BASIC REPL. AMOUNT
	PUMP AMOUNT SETTING
	REFILLING WATER AMOUNT 1
	REFILLING WATER AMOUNT 2
	CORRECTION [SM]
	PROCESS SPECIFICATION
	LANGUAGE
	SOLN.DISPLAY SETTING
	CONCENTRATOR EQUIPPED/UNEQUIPPED
	DIGITAL FLOWMETER EQUIPPED/UNEQUIPPED
	REPLENISH UNIT
	FILM INTERVAL CORRECT.
	REPLENISHMENT ERROR
	REFILLING WATER ERROR
	WASTE SOLUTION ERROR
	PUMP ERROR
	DRYER FAN ERROR
	DRIVE MOTION ERROR
	REPL. PACKAGE ERROR [SM]
	REPL. REMAINS ERROR [SM]
RECORD	ERROR RECORD
	MOTION RECORD

SOFTWARE UPGRADE

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → FLOPPY/STANDARD SETTING: **YES** → FLOPPY DISK: **YES** → SOFTWARE UPGRADE: **YES**

```
    *** SOFTWARE UPGRADE ***
UPGRADE THE SOFTWARE?
                          Y/N
```


● Operation

1. Press the **YES** key.

```
    *** SOFTWARE UPGRADE ***
INSERT SYSTEM PROGRAM
                FLOPPY DISK (Y)
```

2. Set the system program floppy disk and press **YES**.
3. Reading the system program starts.
4. When upgrading is complete, it returns to the **READY** display.
5. Check the version.

   Bringing up the display

   MAIN MENU → Check → Version check → PASSWORD INPUT

FORMAT

● Display

Bringing up the display
MAIN MENU → FLOPPY DISK: **YES**

```
      *** FLOPPY DISK ***
READING/WRITING
↑↓                        Y/N
```

● Operation

- Using ↑ or ↓ switches **READING/WRITING**, **SOFTWARE UPGRADE** and **FORMAT**.
- Pressing **YES** leads the operation forward.

● EXPLANATION

- This is the mode to format (Initialize) floppy disks.

NOTE

- Data can be written only into a floppy disk which has been formatted.
- Available floppy disk is 3.5 inch type 2 HD.
- When the floppy disk drive is not used, be sure to take out the floppy disk to prevent the dust from intruding.

STANDARD SETTING 1

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → FLOPPY/STANDARD SETTING: **YES** → STANDARD SETTING 1: **YES**

```
  *** STANDARD SETTING 1 ***
PROCESS SPECIFICATION
+ -                          Y/N
```

NOTE

- The processing specification appears on the third line.

● Operation

IMPORTANT

- When the specification is changed, the following data is initialized.

N and SM specifications		F specification	
Mode name	Data to initialize	Mode name	Data to initialize
SOLUTION TEMP. SETTING	SOLUTION TEMP. DRYER TEMPERATURE 1 DRYER TEMPERATURE 2	SOLUTION TEMP. SETTING	SOLUTION TEMP. DRYER TEMPERATURE 1 DRYER TEMPERATURE 2
REPLENISH./REFIL.WATER	BASIC REPL. AMOUNT PUMP AMOUNT SETTING REPL. REMAINS [SM] SM FORCED REPL. REFILLING WATER AMOUNT 1 REFILLING WATER AMOUNT 2 REPL. CORRECTION RATE [SM] REFILLING WATER LEVEL 2 [SM]	Replenishment/refill water	PUMP AMOUNT SETTING REPLENISHMENT RATE Evaporation rate at standby 0 Evaporation rate (running) Evaporation rate (power off) Auto Cleaning Amount Setting Refill water record Auto refilling water THERMOHYGROMETER
STANDARD SETTING 2	REPL. REMAINS ERROR [SM] AUTOMATIC CLEANING TIME	STANDARD SETTING 2	–

- Using + or – switches the processing specification.
- Register by **YES**.

● EXPLANATION

● Process specification

Example:

No.	Process specification
0	C-41RA
1	C-41SM
2	CN-16L
3	CNK-4-52
4	FS
5	FL-U
6	CNK-4-84
7	FL-U PLUS

No.	Process specification
8	CN-16S

STANDARD SETTING 2

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → FLOPPY/STANDARD SETTING: **YES** → STANDARD SETTING 2: **YES**

```
** STANDARD SETTING 2***
LANGUAGE                ENGLISH
↑↓,+ -                  Y/N
```


● Operation

- Using ↓ or ↑ switches the setting item.
- Using + or – switches the setting.
- Register by **YES**.

● EXPLANATION

● Setting items

	Setting items	Setting	EXPLANATION
1	LANGUAGE	ENGLISH/JAPANESE	Select ENGLISH or the second language. The languages other than JAPANESE are covered by executing upgrading.
2	Digital flowmeter	ON/OFF	ON when this option is attached
3	REPLENISH UNIT	mL/m or mL/ft	Select the unit display of basic replenishment amount.
4	FILM INTERVAL CORRECT.	0 to 99s	Normally 0s
5	REPLENISHMENT ERROR [N/SM]	ON/OFF	Normally ON When it is turned OFF, the error does not occur even if no replenishment solution is left.
6	WATER SUPPLY ERROR [N/SM]	ON/OFF	Normally ON When it is turned OFF, the error does not occur even if no water is left in the refilling water tank.
7	WASTE SOLUTION ERROR	ON/OFF	Normally ON When it is turned OFF, the error does not occur even when the waste solution tank is full.
8	PUMP ERROR	ON/OFF	Normally ON When it is turned OFF, the error does not occur even when the circulation pump stops.
9	DRYER FAN ERROR	ON/OFF	Normally ON When it is turned OFF, the error does not occur even when the dryer fan stops.
10	DRIVE MOTION ERROR	ON/OFF	Normally ON When it is turned OFF, the error does not occur even when the drive motor stops.
11	REPL. PACKAGE ERROR [SM]	ON/OFF	Normally ON When it is turned OFF, the error does not occur even if no replenishment solution is left.
12	REPL. REMAINS ERROR [SM]	–50% to +50%	Initial value: –5% It is to set by % to show how much the replenishment solution is left when the error massage **No. 037-## CHECK REMAINS IN REPLENISHMENT PACKAGE** occurs.

	Setting items	Setting	EXPLANATION
13	AUTOMATIC CLEANING TIME	0.1 to 99.9s	Initial value: 6.0s To set the time to operate the cleaning pump

Data initialization

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → FLOPPY/STANDARD SETTING: **YES** → DATA INITIALIZATION: **YES**

```
  ** DATA INITIALIZATION **
MAIN
+ -                          Y/N
```


● Operation

1. Select the data to initialize among **MAIN**, **STATUS** and **ALL** using + or −.
2. Press the **YES** key.

```
  ** DATA INITIALIZATION **
INITIALIZE DATA?
                             Y/N
```

3. Pressing **YES** starts initialization.

● EXPLANATION

- Initialize the data saved in the memory area on the main control PCB.

● Data to initialize

Data name		Data after initialization	
MAIN	SWITCH	DISPLAY CONTRAST BUZZER VOLUME DRYER SWITCH	10 1 AUTO
	SOLUTION TEMP. SETTING	SOLUTION TEMP. DRYER TEMPERATURE 1	Initial value of each processing specification 55°C
		DRYER TEMPERATURE 2 THERMOSENSOR CALIBRATION	55°C 0
	TOTALING	TODAY'S ROLLS TOTAL ROLLS	0 0
	Program timer	PROGRAM TIMER SETTING MAINTENANCE DAY SETTING	Status of unset Sunday

Data name		Data after initialization	
	REPLENISH./REFIL. WATER	TOTAL REPLENISH. AMOUNT	0
		BASIC REPL. AMOUNT	Initial value of each processing specification
		PUMP AMOUNT SETTING	Initial value of each processing specification
		REPLENISHMENT LACK TIME	0
		REFILLING WATER AMOUNT 1	Initial value of each processing specification
		REFILLING WATER AMOUNT 2	Initial value of each processing specification
		REPL. CORRECTION RATE [SM]	0%
		REFILLING WATER LEVEL 2 [SM]	0
		REPL. REMAINS [SM]	Package capacity CD-A: 24.6 ml CD-B: 16.4 ml CD-C: 16.4 ml BL: 44.6 ml FIX: 124.6 ml STB: 47.8 ml
		SM FORCED REPL.	
	STANDARD SETTING 1	PROCESS SPECIFICATION	0
	STANDARD SETTING 2	LANGUAGE	English
		CONCENTRATOR EQUIPPED/UNEQUIPPED	OFF
		DIGITAL FLOWMETER EQUIPPED/UNEQUIPPED	OFF
		REPLENISH UNIT	mL/m
		FILM INTERVAL CORRECT.	0s
		REPLENISHMENT ERROR	ON
		REFILLING WATER ERROR	ON
		WASTE SOLUTION ERROR	ON
		PUMP ERROR	ON
		DRYER FAN ERROR	ON
		REPL. PACKAGE ERROR [SM]	–5%
		REPL. REMAINS ERROR [SM]	6.0s
		AUTOMATIC CLEANING TIME	
	REPLENISH./REFILL WATER [F]	PUMP AMOUNT SETTING	N1RA: 14.5 mL N2R: 14.5 mL N3R: 14.5 mL N4R: 14.5 mL N1RB: 14.5 mL N3W: 51.5 mL N43W: 51.5 mL
		REPLENISHMENT RATE	135:100% 110:100% 240:100%
		EVAPORATION RATE AT STANDBY 0	N1W: 7.04 mL N2W: 3.33 mL N3W: 6.70 mL N42W: 14.67 mL N43W: 29.0 mL
		Evaporation rate (running)	N1W: 5.80 mL N2W: 2.93 mL N3W: 4.57 mL N42W: 10.62 mL N43W: 8.19 mL

Data name		Data after initialization	
		Evaporation rate (power off)	N1W: 1.67 mL N2W: 1.07 mL N3W: 1.78 mL N42W: 3.44 mL N43W: 1.00 mL
		AUTOSETTING CLEANING AMOUNT	N1W: 15.6 mL N2W: 33.2 mL N3W: 64.4 mL N42W: 57.7 mL N43W: 18.4 mL
		Refill water record	Deletion
	Operation Mode	Auto refilling water	OFF
		Thermohygrometer	OFF
STATUS	Check	ERROR RECORD MOTION RECORD	Deletion Deletion

REFILLING WATER AMOUNT 1 [N]

Description for each specification

The described section is different depending on the specifications. See below for the description for each specification.

- For SM specification, refer to ☞REFILLING WATER AMOUNT 1 [SM].

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → REPLENISH./REFIL.WATER: **YES** → REFILLING WATER AMOUNT 1: **YES**

```
** REFILLING WATER AMOUNT 1 **
____ = __._s
↑↓,+-,RESET:SHIFT+NO        Y/N
```

● Operation

1. Using ↓ or ↑ switches the name of processing solution.
2. Using + or – changes the setting value.

NOTE

- Pressing **SHIFT** + **NO** resets to the initial value.
- The name of processing solution may be displayed differently depending on the process specification.

● EXPLANATION

- When water refilling has started with refilling water level OFF, set the time to refill water after refilling water level is set to ON.
- This applies to **EXECUTE AUTO WATER REFILLING** of **START CHECK** and **REFILLING WATER** in the **REPLENISH./REFIL.WATER** mode.
- Input range: 0.1s to 30.0s

REFILLING WATER AMOUNT 1 [SM]

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → REPLENISH./REFIL.WATER: **YES** → REFILLING WATER AMOUNT 1: **YES**

```
** REFILLING WATER AMOUNT 1 **
____ = __._s
↑↓,+-,RESET:SHIFT+NO        Y/N
```


● Operation

1. Using ↓ or ↑ switches the name of processing solution.
2. Using + or – changes the setting value.

NOTE

- Pressing **SHIFT** + **NO** resets to the initial value.

● EXPLANATION

- When water refilling has started with refilling water level OFF, set the refilling water amount after refilling water level is set to ON.
- This applies to **EXECUTE AUTO WATER REFILLING** of **START CHECK** and **REFILLING WATER** in the **REPLENISH./REFIL.WATER** mode.
- Input range (CD, FIX2, STB3): 0.1 ml to 255.0 ml
- Input range (BL, FIX1, STB1, STB2): 0.1s to 30.0s

REFILLING WATER AMOUNT 2 [N]

Description for each specification

The described section is different depending on the specifications. See below for the description for each specification.

- For SM specification, refer to ☞ REFILLING WATER AMOUNT 2 [SM].

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → REPLENISH./REFIL.WATER: **YES** → REFILLING WATER AMOUNT 2: **YES**

```
  * W. AMOUNT 2(STANDARD) *
____ = __._s
↑↓,+-,RESET:SHIFT+NO       Y/N
```

● Operation

1. Using ↓ or ↑ switches the name of processing solution.
2. Using + or – changes the setting value.

NOTE

- Pressing **SHIFT** + **NO** resets to the initial value.
- The name of processing solution may be displayed differently depending on the process specification.

● EXPLANATION

- Set the time to refill water when the water refilling starts with refilling water level ON.
- This applies to **EXECUTE AUTO WATER REFILLING** of **START CHECK** and **REFILLING WATER** in the **REPLENISH./REFIL.WATER** mode.
- Since the amount of processing solution evaporation changes with use environment, correct **REFILLING WATER AMOUNT 2** to stabilize the processing solution.

IMPORTANT

- Be sure to correct **REFILLING WATER AMOUNT 2** based on directions of the processing solution manufacturer.
- Correct **REFILLING WATER AMOUNT 2** gradually so as not to dilute the processing solution. (If the solution is diluted, it should be replaced.)

- **REFILLING WATER AMOUNT 2** setting range: 0.1s to 30.0s

● Correction procedures

1. Presume the setting value of **REFILLING WATER AMOUNT 2** according to the use environment of the machine.

Based on directions of the processing solution manufacturer, presume the amount by referring to the table below.

	Rough standard and the replenishment amount of **W. AMOUNT 2**						Initial value:		Setting limitation value (S) of W. AMOUNT 2
	Low temperature/low humidity (13 degrees C, 20%)		Normal temperature/normal humidity (25 degrees C, 50%)		Normal temperature/normal humidity (25 degrees C, 65%)		High temperature/high humidity (30 degrees C, 80%)		
	W. AMOUNT 2 (S)	W. AMOUNT (mL)	W. AMOUNT 2 (S)	W. AMOUNT (mL)	W. AMOUNT 2 (S)	W. AMOUNT (mL)	W. AMOUNT 2 (S)	W. AMOUNT (mL)	
CD	4.4	41.4	4.4	41.4	3.7	34.6	3.3	30.6	4.6

	Rough standard and the replenishment amount of **W. AMOUNT 2**						Initial value:		Setting limitation value (S) of W. AMOUNT 2
	Low temperature/low humidity (13 degrees C, 20%)		Normal temperature/normal humidity (25 degrees C, 50%)		Normal temperature/normal humidity (25 degrees C, 65%)		High temperature/high humidity (30 degrees C, 80%)		
	W. AMOUNT 2 (S)	W. AMOUNT (mL)	W. AMOUNT 2 (S)	W. AMOUNT (mL)	W. AMOUNT 2 (S)	W. AMOUNT (mL)	W. AMOUNT 2 (S)	W. AMOUNT (mL)	
BL	2.0	17.9	2.0	17.9	1.4	12.0	0.0	0	4.7
FIX1	1.5	13.0	1.5	13.0	1.2	10.1	0.0	0	4.0
FIX2	1.5	13.0	1.5	13.0	1.2	10.1	0.0	0	4.1
STB1	1.6	14.0	1.6	14.0	1.2	10.1	0.0	0	5.6
STB2	1.6	14.0	1.6	14.0	1.3	11.0	0.0	0	4.8
STB3	4.2	39.5	4.2	39.5	3.6	33.6	2.6	23.8	4.4

NOTE

- The following data in the table is the standards for presuming the correction value and the efficiency of machine is not guaranteed.
- Data for calculating the refilling water amount by W. AMOUNT 2 (operation time of the refilling water pump)
  Pump output amount for one second of the beginning: 8.1 mL
  Pump output amount after one second of the beginning: 9.8 mL

2. Change the setting value of **REFILLING WATER AMOUNT 2**. ☞ Operation

Enter the setting value following the instruction by the processing solution manufacturer.

IMPORTANT

- To prevent diluting the solution, set the value smaller than ☞ Setting limitation value (S) of W. AMOUNT 2.
- To minimize the accidental error of the output, enter **0** or **1** or the later.

3. Observe the condition of the solution for a while.

If the condition of the solution is out of the specified range, change the setting value again according to the instruction by the processing solution manufacturer.

REFILLING WATER AMOUNT 2 [SM]

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → REPLENISH./REFIL.WATER: **YES** → REFILLING WATER AMOUNT 2: **YES**

```
   * W. AMOUNT 2(STANDARD) *
____ = __._s
↑↓,+-,RESET:SHIFT+NO       Y/N
```


● Operation

1. Using ↓ or ↑ switches the name of processing solution.
2. Using + or – changes the setting value.

NOTE

- Pressing **SHIFT** + **NO** resets to the initial value.

● EXPLANATION

- Set the refilling water amount when the water refilling has started with refilling water level ON.
- This applies to **EXECUTE AUTO WATER REFILLING** of **START CHECK** and **REFILLING WATER** in the **REPLENISH./REFIL.WATER** mode.
- Since the amount of processing solution evaporation changes with use environment, correct **REFILLING WATER AMOUNT 2** to stabilize the processing solution.

  NOTE
  - You can set **W. AMOUNT 2** by three steps of **STANDARD**, **DRY COND** and **LOW USE**.
  - By changing the **REFILLING WATER LEVEL 2** according to the use environment, one of the **STANDARD**, **DRY COND** or **LOW USE** is applied to **W. AMOUNT 2**. ☞ 3151

  IMPORTANT
  - Be sure to correct REFILLING WATER AMOUNT 2 and set Refilling Water Level 2 based on directions of the processing solution manufacturer.
  - Correct **REFILLING WATER AMOUNT 2** gradually so as not to dilute the processing solution. (If the solution is diluted, it should be replaced.)
- Input range (CD, FIX2, STB3): 0.1 ml to 255.0 ml
- Input range (BL, FIX1, STB1, STB2): 0.1s to 30.0s

● Correction procedures

1. Presume the setting value of **REFILLING WATER AMOUNT 2** according to the use environment of the machine.

   Based on directions of the processing solution manufacturer, presume the amount by referring to the table below.

	Rough standard and the replenishment amount of **W. AMOUNT 2**						Initial value:		Setting limitation value of W. AMOUNT 2
	Low temperature/low humidity (13 degrees C, 20%)		Normal temperature/normal humidity (25 degrees C, 50%)		Normal temperature/normal humidity (25 degrees C, 65%)		High temperature/high humidity (30 degrees C, 80%)		
	REFILLING WATER AMOUNT 2	W. AMOUNT (mL)	REFILLING WATER AMOUNT 2	W. AMOUNT (mL)	REFILLING WATER AMOUNT 2	W. AMOUNT (mL)	REFILLING WATER AMOUNT 2	W. AMOUNT (mL)	
CD	41.4 (mL)	41.4	41.4 (mL)	41.4	34.6 (mL)	34.6	31.1 (mL)	31.1	43.7 (mL)
BL	2.0 (S)	17.9	2.0 (S)	17.9	1.4 (S)	12.0	0.0 (S)	0	4.7 (S)
FIX1	1.5 (S)	13.0	1.5 (S)	13.0	1.2 (S)	10.1	0.0 (S)	0	4.0 (S)
FIX2	13.0 (mL)	13.0	13.0 (mL)	13.0	10.1 (mL)	10.1	0.0 (mL)	0	38.5 (mL)
STB1	1.6 (S)	14.0	1.6 (S)	14.0	1.2 (S)	10.1	0.0 (S)	0	5.6 (S)
STB2	1.6 (S)	14.0	1.6 (S)	14.0	1.3 (S)	11.0	0.0 (S)	0	4.8 (S)
STB3	39.5 (mL)	39.5	39.5 (mL)	39.5	33.6 (mL)	33.6	24.5 (mL)	24.5	41.6 (mL)

NOTE

- The following data in the table is the standards for presuming the correction value and the efficiency of machine is not guaranteed.
- Data for calculating the refilling water amount by W. AMOUNT 2 (operation time of the refilling water pump)
  Pump output amount for one second of the beginning: 8.1 mL
  Pump output amount after one second of the beginning: 9.8 mL

2. Change the setting value of **REFILLING WATER AMOUNT 2**. ☞ Operation

Enter the setting value following the instruction by the processing solution manufacturer.

IMPORTANT

- To prevent diluting the solution, set the value smaller than ☞ Setting limitation value of W. AMOUNT 2.
- To minimize the accidental error of the output, set the value of BL, FIX1, STB1, and STB2 to **0** or **1** or the later.

3. Observe the condition of the solution for a while.

If the condition of the solution is out of the specified range, change the setting value again according to the instruction by the processing solution manufacturer.

CORRECTION [SM]

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → REPLENISH./REFIL.WATER: **YES** → CORRECTION: **YES**

```
      *** CORRECTION ***
REPL. CORRECTION RATE      +__%
↑↓,+ -                     Y/N
```

● Operation

1. Using ↓ or ↑ switches **REPL. CORRECTION RATE** and **REFILLING WATER LEVEL 2**.
2. Using + or – changes the setting value.
3. Pressing **YES** performs registration.

● EXPLANATION

- REPLENISHMENT CORRECTION RATE
  - For the purpose of controlling the processing solution, the replenishment amount and the water supply amount can be increased according to the amount of processing without changing the value of **BASIC REPLENISHMENT AMOUNT**. All of the basic replenishment amount included the water supply amount are changed at the same rate.
  - Input range: 0% to +50%

- REFILLING WATER LEVEL 2
  - Set the usage environment of this machine.
    Refilling water amount is set according to the usage environment in **REFILLING WATER AMOUNT 2**. ☞ 3142
  - SETTING
    - W. AMOUNT 2 (STANDARD): 0
    - W. AMOUNT 2 (DRY COND): 1
    - W. AMOUNT 2 (LOW USE): 2

Pump amount setting [F]

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → REPLENISH./REFIL. WATER: **YES** → PUMP AMOUNT SETTING: **YES**

```
** PUMP AMOUNT SETTING **
_____= ___._mL
↑↓,+ -                    Y/N
```

● Operation

1. Using ↓ or ↑ switches the items.
2. Using + or – changes the setting value.
3. Pressing **YES** performs registration.

● EXPLANATION

The pump amount of each replenisher pump (N1RA, N1RB, N2R, N3R, N4R, N3W AND N43W) measured in **PUMP AMOUNT MEASUREMENT** is set.
For **PUMP AMOUNT MEASUREMENT**, refer to ☞ 3162.

PROCESSING TANK	PUMP AMOUNT (DEFAULT)
N1RA	14.5 mL
N1RB	14.5 mL
N2R	14.5 mL
N3R	14.5 mL
N4R	14.5 mL
N3W	51.5 mL
N43W	51.5 mL

NOTE
- For user mode, only N3W and N43 W can be set.

Pump amount measurement [F]

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → REPLENISH./REFIL. WATER: **YES** → PUMP AMOUNT MEASUREMENT: **YES**

```
** PUMP AMOUNT MEASUREMENT
**

↑↓                    Y/N
```

● Operation

1. Using ↓ or ↑ switches the items.
2. Pressing **YES** performs operation.

NOTE

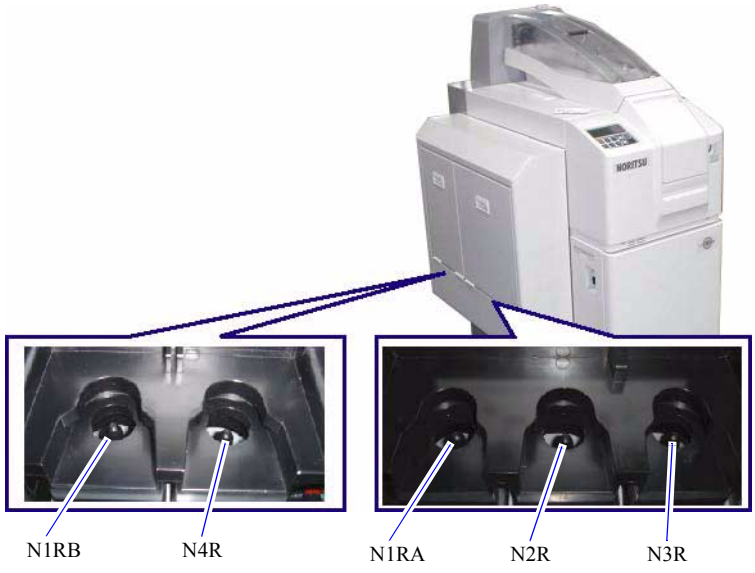
- Pressing **YES** operates the replenisher pump for 30 seconds.
- For user mode, only N3W and N43W can be measured.

● EXPLANATION

The pump amount of each replenisher pump (N1RA, N1RB, N2R, N3R, N4R, N3W, N43W) is measured. Set the measured value in **Pump Amount Setting**.
For **Pump Amount Setting**, refer to ☞ 3161.

IMPORTANT

- After replacing the replenisher pump or replenisher filter, operate the replenisher pump twice or three times to exhaust the air from the piping hose. Then measure the pump amount.
- Measure the pump amount three times and input the average value in **Pump Amount Setting**.
- The amount of replenishment solution used for Pump Amount Measurement is not reduced from the total amount of the replenishment solution recognized by the system. Therefore, return the replenishment solution to the replenisher tank after measuring the pump amount.



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Refill water [F]

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → REPLENISH./REFIL. WATER: **YES** → REFILL WATER: **YES**

```
    *** REFILL WATER ***
EVAPORATION RATE AT STANDBY 0
↑↓                          Y/N
```


● Operation

1. Using ↓ or ↑ switches the items.
2. Using + or – changes the setting value.
3. Pressing **YES** performs adding water or registration.

● EXPLANATION

The evaporation rate and adding water amount of the processing solution are set.

Evaporation rate at standby 0

The evaporation rate when the exhaust fan is ON is set for each processing tank (N1W, N2W, N3W, N42W AND N43W).

- Input range: 0.0 to 50.0 mL

PROCESSING TANK	Evaporation rate at standby 0
N1W	7.04 mL/h
N2W	3.33 mL/h
N3W	6.70 mL/h
N42W	14.67 mL/h
N43W	7.46 mL/h

Evaporation rate (running)

The evaporation rate (running) is set for each processing tank (N1W, N2W, N3W, N42W, N43W).

- Input range: 0.0 to 50.0 mL

PROCESSING TANK	Standard evaporation rate (running)
N1W	5.80 mL/h
N2W	2.93 mL/h
N3W	4.57 mL/h
N42W	10.62 mL/h
N43W	8.19 mL/h

Evaporation rate (power off)

The evaporation rate when the power is OFF is set for each processing tank (N1W, N2W, N3W, N42W, N43W).

- Input range: 0.0 to 50.0 mL

PROCESSING TANK	Standard evaporation rate (power off)
N1W	1.64 mL/h
N2W	1.07 mL/h
N3W	1.78 mL/h
N42W	3.44 mL/h
N43W	1.00 mL/h

Auto Cleaning Amount Setting

The water amount used for automatic cleaning is set for each processing tank (N1W, N2W, N3W, N42W, N43W).

- Input range: 0.0 to 300.0 mL

PROCESSING TANK	AUTOMATIC CLEANING STANDARD WATER AMOUNT
N1W	15.6 mL
N2W	33.2 mL
N3W	64.4 mL
N42W	57.7 mL
N43W	18.4 mL

Refill water record

Refill water records appear.

- Date: The date water is refilled.
- P value: Vapor pressure calculated by environmental temperature (mmHg)
- TS: Standby time (minute)
- TD: Drive time (minute)
- TO: Power OFF time (minute)

Installation operation [F]

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → REPLENISH./REFIL. WATER: **YES** → INSTALLATION OPERATION: **YES**

```
** INSTALLATION OPERATION **
AUTO MIXING
↑↓                          Y/N
```


● Operation

1. Using ↓ or ↑ switches the items.
2. Using + or – changes the setting value.
3. Pressing **YES** performs operation.

● EXPLANATION

Mixing water and replenisher solution is carried out during installation.

Auto mixing

Open the cleaning valve, carry out the air exhausting of the cleaning pumps and replenishment, and mix water and replenishment solution automatically.

- The procedure is as follows for mixing water and replenishment solution.
  1. Exhaust the air from the cleaning valve.
  2. Exhaust the air from the agitation valve.
  3. Mix water and replenishment solution NC1.
  4. Mix water and replenishment solution NC2.
  5. Exhaust the air from the replenisher pump.
  6. Confirm the solution level of the processing tank.

Air removal

Air exhaust from each replenishment solution pipe (N1RA, N1RB, N2R, N3R and N4R), adding water pipe (N1W, N2W, N3W, N42W and N43W) and cleaning pipe (N1W, N2W, N3W, N42W and N43W).

IMPORTANT

- Normally, after **Auto mixing**, air exhaust operates automatically. When the error occurs during **Auto mixing**, use this mode to perform air exhaust.

Replenisher mixing

Water and each replenishment solution (NC1 and NC2) are mixed.

- If carrying out **AUTO MIXING** and **REPLENISHER MIXING** with replenishment solution left in the replenisher tank, the replenishment solution may overflow.
- Replenisher mixing is not used normally.

Operation mode set [F]

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → REPLENISH./REFIL. WATER: **YES** → OPERATION MODE SET: **YES**

```
   *** OPERATION MODE SET ***
AUTO WATER REFILLING
+ -                          Y/N
```


● Operation

1. Using ↓ or ↑ switches the items.
2. Using + or – changes the setting value.
3. Pressing **YES** performs operation.

● EXPLANATION

The operation setting is performed for each item of processors.

Auto refilling water

Set auto water refilling: YES or NO.

- ON: YES
- OFF: NO

Thermohygrometer

Set environmental thermohygrometer: YES or NO.

- ON: YES
- OFF: NO

Replenishment data initialization [F]

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → REPLENISH./REFIL. WATER: **YES** → REPL. DATA INITIALIZATION: **YES**

```
* REPL. DATA INITIALIZATION *
_______
+ -                          Y/N
```

● Operation

1. Using + or – switches the items.
2. Pressing **SHIFT** performs operation.

● EXPLANATION

If the replenishment data initialization is executed, the following items are changed.

- **PUMP AMOUNT DATA** is changed to **PUMP AMOUNT SETTING**.
- **CORRECTION DILUTION AMOUNT** is changed to the default value.
- **REPLENISHMENT CYCLE** is recalculated and clear the count of unreplenishment.

Replenishment data initialization

Select the item to initialize the replenishment data.

- NC1
- NC2
- NC1 + NC2

REPLENISHER CONTROL DATA [F]

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → REPLENISH./REFIL. WATER: **YES** → REPLENISHER CONTROL DATA : **YES**

```
** REPLENISHER CONTROL DATA **
REPL. INTERVAL DATA (DEFAULT)
↑↓                          Y/N
```


● Operation

1. Using ↓ or ↑ switches the settings.
2. Select the setting to display using the **YES** key.

● EXPLANATION

The control data related to replenishment is displayed.

NOTE

- The data cannot be changed but only displayed.
- It is counts down from REPL. INTERVAL DATA (DEFAULT) every time a film is processed, and calculates the replenishment timing.

REPL. INTERVAL DATA (DEFAULT)

The default of replenishment interval data for each processing solution is displayed.

Replenishment solution	REPL. INTERVAL DATA (DEFAULT)
N1RA	1,063 mm
N1RB	1,063 mm
N2R	1,276 mm
N3R	850 mm
N4R	1,993 mm
N3W	755 mm
N43W	1,196 mm

REPL. INTERVAL CHANGE (REMAIN)

The replenishment interval count remaining until the replenishment starts next time is displayed.
When the count gets **0**, it starts replenishment.

PRESENT PUMP OUTPUT DATA

The present output data for each replenisher pump is displayed.

Replenishment solution	Initial value:
N1RA	14.50 ml
N1RB	14.50 ml
N2R	14.50 ml
N3R	14.50 ml
N4R	14.50 ml

Replenishment rate [F]

● Display

Bringing up the display

MAIN MENU → ☞ Approach to the service personnel mode → REPLENISH./REFIL. WATER: **YES** → REPLENISHMENT RATE : **YES**

```
   *** REPLENISHMENT RATE ***
___=___%
↑↓,+ -                    Y/N
```


● Operation

1. Using ↓ or ↑ switches the items.
2. Using + or – changes the setting value.
3. Pressing **YES** performs registration.

● EXPLANATION

Set the replenishment amount for 110 and 240 films.

- Input range: 50 to 200 %

NOTE

- The display of 135 cannot be changed.

Film type	Rate	Initial value:
135 - 24exp	1.00	100%
110	0.87	100%
240 - 25exp	0.68	100%

NOTE

- Assuming that the replenishment amount is **1.00** when processing 135 film, standard replenishment rate for 110 and 240 films are to be 100 % for each here.

4. Troubleshooting

Symptoms due to the wiring connection failure 4001
Symptoms resulted from blowout of fuse 4011
Error: Loading 4101
No. 001-01 FILM STOPPED 4101
(N)
No. 002-01 FILM CUTTER NOT MOVED 4101
(N)
No. 006-01 PRESSURE SENSOR ERROR 4101
(N)
No. 007-01 CUTTER OPERATION ERROR 4101
(N)
No. 009-01 CLOSE LOADING COVER 4101
(N)
Error message: Processor 1 4201
No. 021-01 PROCESS.SOLN.LEVEL TOO LOW 4201
(N)
No. 022 SOLUTION TEMP. ERROR 4201
(N)
No. 023-01 SOLN. S-THERMO. ACTIVATED 4201
(N)
No. 024 CIRCULATION PUMP STOPPED 4201
(N)
No. 027 THERMOSENSOR ERROR 4201
(N)
No. 028-01 DRYER FAN STOPPED 4201
(N)
No. 029[N] REPLENISHER TANK EMPTY 4201
(N)
No. 030 WASTE SOLUTION TANK FULL 4201
(N)

Error message: Processor 2 4206
No. 031-01[N] TURN ON REPLENISHMENT SWITCH 4206
(N)
No. 032-01 TURN ON DRIVE SWITCH 4206
(N)
No. 033-01 A/D CONVERTER ERROR 4206
(N)
No. 034-01 CLOSE TOP COVER 4206
(N)
No. 036-01[SM] REPLENISHER / WATER SUPPLY 4206
PUMP OPERATION ERROR (N)
No. 037[SM] __ CHECK REMAINS IN 4206
REPLENISHMENT PACKAGE (N)
No. 038[SM] __ REPLENISHMENT PACKAGE 4206
NOT ATTACHED (N)
No. 040-01 DRIVE MOTION ERROR 4206
(N)
No. 041-01 CIRCULATION LOW 4206
(N)
No. 042-01[N] REFILL WATER INTO 4206
REFILLING WATER TANK (N)
No. 043[SM] __ REPLENISHMENT PACKAGE 4206
EMPTY (N)
No. 044-01 VOLTAGE SETTING ERROR 4206
(N)
No. 045-01 SET THE RACK STOPPER 4206
(N)
No. 046-01 TURN OFF THE CIRCUIT BREAKER 4206
(N)
No. 047-01[SM] WATER SUPPLY TANK EMPTY 4206
(N)
No. 051-01 SET DATE & TIME 4206
(N)
No. 052-01 INPUT MAIN DATA 4206
(N)
No. 053-01 POWER WENT DOWN 4206
(N)
Error: Floppy disk 4501
No. 081-01 FLOPPY DISK READING ERROR 4501
(N)
No. 082-01 FLOPPY DISK WRITING ERROR 4501
(N)
No. 083-01 FLOPPY DISK FORMAT. ERROR 4501
(N)
No. 084-01 DATA FLOPPY DISK 4501
NOT INSERTED YET (N)
No. 085-01 SYSTEM PROGRAM FLOPPY 4501
DISK NOT INSERTED YET (N)

Error message: Processor (F specification) 4601
No. 201 [F] WATER IS INSUFFICIENT FOR 4601
MIXING. ADD WATER
No. 202 [F] NC_ REPL CARTRIDGE USED UP. 4601
REPLACE IT WITH A NEW ONE. (N)
No. 204 [F] NC_ SET REPL CARTRIDGE. 4601
(N)
No. 206 [F] NC_ CARTRIDGE SETTING UNIT 4601
DOES NOT GO UP. (N)
No. 208 [F] NC_ CARTRIDGE SETTING UNIT 4601
DOES NOT GO DOWN. (N)
No. 212 [F] NC_ CLOSE THE DOOR OF THE 4601
CARTRIDGE SETTING UNIT. (N)
No. 214 [F] NC_ CARTRIDGE SETTING UNIT 4601
DOOR WAS OPEN WHILE MIXING.(N)
No. 216 [F] OUT OF WATER 4601
ADD WATER
No. 217 [F] WATER LEVEL DETEC ABNORMAL 4601
(N)
No. 220 [F] ____ REPL NOT PREPARED 4601
(N)
No. 230 [F] ____ LEVEL DETECT ABNORMAL 4601
(N)
No. 235 [F] NC_ SETTING UNIT LIMIT 4601
DETECTOR ABNORMAL (N)
No. 237 [F] NC_ REPL LOWER LEVEL ABNORMAL 4601
(N)
No. 255 [F] ____ LOWER DETECTOR DOES NOT 4601
DETECT SOLUTION. (N)
No. 268 [F] NC_ REPL SYSYTEM IS ABNORMAL 4601
FIND AND SOLVE TROUBLE (N)
No. 270 [F] PROCESSING IMPOSSIBLE OWING TO 4601
N4R OR N1RB OUTPUT ABNORM. (N)
No. 272 [F] NC_ OPENING MOTOR OR UPPER 4601
DETECTOR IS ABNORMAL (N)
No. 274 [F] N1R_ REPL PUMP, WASH VALVE ,OR 4601
STIR VALVE IS ABNORMAL (N)
No. 275 [F] ____ REPL PUMP OR WASH VALVE 4601
IS ABNORMAL (N)
No. 279 [F] ____ REPL PUMP IS ABNORMAL 4601
(N)
No. 290 [F] ____ REPLENISHING PUMP 4601
(N)
No. 300 [F] ___ SOLN LEVEL OF PROCESSING 4601
TANK WENT LOW. (N)
No. 302 [F] WATER REFILLING SYSTEM NOT 4601
FUNCTIONING. (N)
No. 306 [F] DATA FOR AUTO WATER REFILLING 4601
ABNORMAL (N)

Troubleshooting flow 4991
When No.206 NC_CARTRIDGE SETTING UNIT DOES NOT GO UP. and No.272 OPENING MOTOR OR UPPER DETECTOR IS ABNORMAL occur 4991
When No.208 NC_CARTRIDGE SETTING UNIT DOES NOT GO DOWN occurs 4991
When No.214 NC_CARTRIDGE SETTING UNIT DOOR WAS OPEN WHILE MIXING. occurs 4991
When No.220 No replenishment solution is produced. occurs 4991
When No.255 After opening _ _ _, the lower level does not become "with solution". occurs 4991
When No.270 Cannot process because of pump amount error for N4R or N1RB. occurs 4991
When No. 274 Error of N1R_replenisher pump, agitation value or cleaning value No.275 Error of _ _ _replenisher pump or cleaning valve No.279_ __replenisher pump errorNo.290_ _ _replenisher pump system error occurs 4991
When No.300 _ _ _ SOLN LEVEL OF PROCESSING TANK WENT LOW. occurred 4991
Support documentation of trouble shooting 4991

Symptoms due to the wiring connection failure

● Conditions to check the connecting defection of wiring

The following list shows the errors which occur when turning **ON** the machine power supply with the connectors disconnected on each PCB, or the machine symptoms ("the display does not appear", "the lamp does not light", "the fan does not rotate", etc.)

IMPORTANT

- This only describes the symptoms resulted from blowout of fuse when the connectors to each PCB are not plugged.
- Only the PCBs of normal specification are described.
- As for the optional PCBs, only some of them are described about.
- When any malfunction does not occur in turning **ON** the power supply of the system on condition that a connector is unplugged from each PCB, **Any malfunction does not occur on this condition.** is mentioned for the connector in the list.

● Connector connecting positions

Connecting position	
☞ Main control PCB	☞ Power PCB 1
☞ Power PCB 2	☞ Connecting PCB
☞ DC power supply	

● Main control PCB

☞ 6301

Connector No.	Connected to	Wiring diagram	Symptom
J/P1	Connected to the power PCB 2 (J/P83) • Detection of the setting voltage on the power PCB 1 • Circulation pump control • Signal input of each sensor and switch • Drive motor control • Alarm control • Dryer fan rotating detection signal input • Dryer safety thermostat signal input • Processing solution float switch control • Signal input of rack stopper sensor and top cover sensor • Signal input of the digital flowmeter	☞ FP 3-1	**No. 044-01 VOLTAGE SETTING ERROR** has occurred. The buzzer does not stop even by pressing **NO**. The error cannot be released.
J/P2	Connected to the power PCB 2 (J/P84) • DC+24 V input • Signal input of dryer thermosensor	☞ FP 1-2 ☞ FP 3-7	**No. 027-01 DRY THERMOSENSOR ERROR** has occurred. When releasing the error with **YES** + **NO**, **No. 022-01 CD SOLUTION TEMP. ERROR** has occurred. The error cannot be released.
J/P3	Connected to the counter (J/P998) and the hour meter (J/P999)	☞ FP 3-13	The counter does not operate. The hour meter does not operate.

Connector No.	Connected to	Wiring diagram	Symptom
J/P4	Supplies DC+5 V to the floppy disk drive (J/P126).	☞ FP 2-2	The floppy disk drive does not operate.
J/P5	Connected to the floppy disk drive (J/P127)	☞ FP 2-2	The floppy disk drive does not operate.
J/P6	Connected to the thermosensor • TH1 (J/P132) • TH2 (J/P133) • TH3 (J/P134) • TH4 (J/P135)	☞ FP 3-4	**No. 027-01 CD THERMOSENSOR ERROR** has occurred. The error cannot be released.
J/P7	Input DC+5 V from the power PCB 2 (J/P91)	☞ FP 1-2	The display does not appear.
J/P8	Connected to the connecting PCB (J/P101)	☞ FP 2-2	The display does not appear.
J/P10	Connected to the power PCB 2 (J/P89) • For the detection of input voltage • Processing solution heater control • CD circulation pump cooling fan control • Controls of Loading cover lock solenoid and pressure solenoid • Dryer fan control • Dryer heater control • Replenisher pump control • Effluent level sensor control • Ready lamp control • Chilling unit control	☞ FP 3-1	**No. 044-01 VOLTAGE SETTING ERROR** has occurred. The buzzer does not stop even by pressing **NO**. The error cannot be released.
J/P13	Connected to the power PCB 2 (J/P92) • Circulation pump control • Alarm reset • Replenisher pump control • Signal input of replenisher level • Refilling water pump control • Signal input of refilling water level • Signal input of effluent level • Aeration pump control • Exhaust fan control • CD cooling water solenoid valve control	☞ FP 3-2 ☞ FP 3-9	**No. 024-01 CD CIRCULATION PUMP STOPPED** has occurred. After a while, **No. 029-04 FIX REPLENISHER TANK EMPTY** has occurred. Releasing the error by **NO** returns to **No. 024-01 CD CIRCULATION PUMP STOPPED**. After releasing **No. 024-01 CD CIRCULATION PUMP STOPPED** by **YES** + **NO**, **No. 030-01 CD WASTE SOLUTION TANK FULL** occurs. After a while, it returns to **No. 024-01 CD CIRCULATION PUMP STOPPED**.

● Power PCB 1

☞6311

Connector No.	Connected to		Symptom
J/P23	DC power supply connecting (J/P111)	☞FP 1-1	The power supply does not turn on even by turning on the circuit breaker.
J/P24	Connected to the processing solution heater • H1 (J/P121) • H2 (J/P122) • H3 (J/P123)	☞FP 3-3	The temperature of processing solution does not increase and the message **ADJUSTING SOLUTION TEMP.** remains on.
J/P25	Connected to the dryer heater (J/P124)	☞FP 3-1 ☞FP 3-7	**No. 044-01 VOLTAGE SETTING ERROR** has occurred. The buzzer does not stop even by pressing **NO**. The error cannot be released.
J/P26	Connected to the jumper connector	☞FP 2-1	No malfunction occurs on this condition.
J/P27	Connected to the power PCB 2 (J/P81) • Processing solution heater power supply control • Dryer heater power supply control	☞FP 3-4 ☞FP 3-7	The temperature of processing solution does not increase and the message **ADJUSTING SOLUTION TEMP.** remains on.
J/P28	Connected to the power PCB 2 (J/P82) • For detection of power voltage and frequency • Processing solution heater control • Dryer heater control	☞FP 3-1 ☞FP 3-3	**No. 044-01 VOLTAGE SETTING ERROR** has occurred. The buzzer does not stop even by pressing **NO**. The error cannot be released.

● Power PCB 2

☞6321

Connector No.	Connected to		Symptom
J/P51	Connected to drive motor driver (J/P115)	☞FP 3-6	When turning on the drive switch, **No. 040-01 DRIVE MOTION ERROR** occurs. The buzzer stops by **NO**, the error is released by **YES** + **NO**. However, it recurs immediately.
J/P52	• Connected to the drive motor driver (J/P116) • Connected to the ready lamp (J/P118) • Connected to the exhaust fan (J/P151) • Connected to the dryer fan (J/P152) • Connected to the dryer safety thermostat (J/P125)	☞FP 2-4 ☞FP 3-7 ☞FP 3-13	**No. 026-01 DRYER S-THERMO. ACTIVATED** has occurred. The buzzer stops by **NO**, the error can be released by **YES** + **NO**. When turning on the drive switch, **No. 026-01 DRYER S-THERMO. ACTIVATED** recurs. After a while, **No. 040-01 DRIVE MOTION ERROR** occurs.
J/P53	Connected to the dryer thermosensor (J/P153)	☞FP 3-7	**No. 027-01 DRY THERMOSENSOR ERROR** has occurred. The buzzer stops by **NO**, the error is released by **YES** + **NO**. However, it recurs immediately.
J/P54	Connected to the effluent level sensor (CD)	☞FP 3-12	**No. 030-01 CD WASTE SOLUTION TANK FULL** occurs. The buzzer stops by **NO**, however, the error cannot be released.

Connector No.	Connected to		Symptom
J/P55	Connected to effluent level sensor (BL)	☞ FP 3-12	**No. 030-02 BL WASTE SOLUTION TANK FULL** occurs. The buzzer stops by **NO**, however, the error cannot be released.
J/P56	Connected to effluent level sensor (FIX)	☞ FP 3-12	**No. 030-04 FIX WASTE SOLUTION TANK FULL** occurs. The buzzer stops by **NO**, however, the error cannot be released.
J/P57	Connected to effluent level sensor (STB)	☞ FP 3-12	**No. 030-08 STB WASTE SOLUTION TANK FULL** occurs. The buzzer stops by **NO**, however, the error cannot be released.
J/P58	Connected to rack stopper sensor	☞ FP 3-13	**No. 045-01 SET THE RACK STOPPER** occurs. The buzzer stops by **NO**, however, the error cannot be released.
J/P59	Connected to each sensor in the loading section • Pressure sensor (SE1) (J/P136) • Film cutter sensor (SE2) (J/P137) • Loading cover sensor (SE3) (J/P138) • Film jam sensor (SE7) (J/P139) • Film cartridge sensor (SE6 LED) (J/P140) • Film cartridge sensor (SE6 detection) (J/P141) • Sensor PCB (SE4, 5) (J/P142)	☞ FP 3-5	Although **READY** is displayed and the loading cover is closed after inserting the leader card, it does not start feeding. (No sign can ben seen.)
J/P60	• Connected to loading cover lock solenoid (J/P143) • Connected to pressure solenoid (J/P144)	☞ FP 3-5	Although the message **LEADER CARD BEING FED** is appeared when **READY** is displayed and the loading cover is closed after inserting the leader card, the loading cover is not locked. After a while, **No. 001-02 FILM STOPPED** occurs. The leader card is not advanced. The buzzer stops by **NO**, the error can be released by removing the leader card and pressing **YES** + **NO**.
J/P61	For connecting to the chilling unit (J/P192)	☞ FP 3-14	No malfunction occurs on this condition.
J/P62	Connected to the refilling water pump and cleaning pump • CD-W (J/P155) • BL-W (J/P156) • FIX1-W (J/P157) • FIX2-W (J/P158) • STB1-W (J/P159) • STB2-W (J/P160) • STB3-W (J/P161) • Cleaning pump (J/P162)	☞ FP 3-10	The refilling water pump and the cleaning pump do not operate.
J/P63	• Connected to the replenisher pump (J/P169) • Connected to the aeration pump (J/P131) • Connected to the CD cooling water solenoid valve (J/P130, 170)	☞ FP 2-4	Replenisher pump, aeration pump and CD cooling water solenoid valve do not operate.
J/P65	Connected to the refilling water tank level sensor (J/P168)	☞ FP 3-10	No malfunction occurs on this condition.
J/P68	Connected to the drive switch	☞ FP 1-2 ☞ FP 3-6	The drive switch is not turned on.

Connector No.	Connected to		Symptom
J/P69	Connected to the top cover sensor	☞ FP 3-13	**No. 034-01 CLOSE TOP COVER** has occurred and cannot be released.
J/P70	Connected to the processing solution float switch (CD)	☞ FP 3-4 ☞ FP 3-10	**No. 021-01 PROCESS.SOLN.LEVEL TOO LOW** occurs. By stopping the buzzer using **NO** and releasing the error using **YES** + **NO**, **No. 023-01 SOLN. S-THERMO. ACTIVATED** occurs for a moment and then immediately **No. 021-01 PROCESS.SOLN.LEVEL TOO LOW** recurs.
J/P71	Connected to the processing solution float switch (BL)	☞ FP 3-4 ☞ FP 3-10	**No. 021-01 PROCESS.SOLN.LEVEL TOO LOW** occurs. By stopping the buzzer using **NO** and releasing the error using **YES** + **NO**, **No. 023-01 SOLN. S-THERMO. ACTIVATED** occurs for a moment and then immediately **No. 021-01 PROCESS.SOLN.LEVEL TOO LOW** recurs.
J/P72	Connected to the processing solution float switch (FIX1)	☞ FP 3-10	No malfunction occurs on this condition.
J/P73	Connected to the processing solution float switch (FIX2)	☞ FP 3-10	No malfunction occurs on this condition.
J/P74	Connected to the processing solution float switch (STB1)	☞ FP 3-10	No malfunction occurs on this condition.
J/P75	Connected to the processing solution float switch (STB2)	☞ FP 3-4 ☞ FP 3-10	No malfunction occurs on this condition.
J/P76	Connected to the processing solution float switch (STB3)	☞ FP 3-10	**No. 021-01 PROCESS.SOLN.LEVEL TOO LOW** occurs. By stopping the buzzer using **NO** and releasing the error using **YES** + **NO**, **No. 023-01 SOLN. S-THERMO. ACTIVATED** occurs for a moment and then immediately **No. 021-01 PROCESS.SOLN.LEVEL TOO LOW** recurs.
J/P77	Connected to the circulation pump	☞ FP 3-2	**No. 024-01 CD CIRCULATION PUMP STOPPED** has occurred. The buzzer stops by **NO**, the error is released by **YES** + **NO**. However, it recurs immediately.
J/P78	Connected to the CD circulation pump cooling fan (J/P154)	☞ FP 3-4	CD circulation pump cooling fan does not rotate.
J/P79	Connected to the replenisher solution level sensor • CD (J/P163) • BL (J/P164) • FIX (J/P165) • STB (J/P167)	☞ FP 3-9	**No. 029-01 CD REPLENISHER TANK EMPTY** has occurred. When releasing the error by **NO**, the message of **REPLENISHER TANK EMPTY** of BL, FIX and STB in this order appears. When releasing **REPLENISHER TANK EMPTY** of STB, **READY** appears. Carry out the processing, and it recurs at the timing to be replenished.
J/P80	Connected to the CD digital flowmeter (J/P191)	☞ FP 3-14	No malfunction occurs on this condition.
J/P81	Connected to the power PCB 1 (J/P27) • Processing solution heater power supply control • Dryer heater power supply control	☞ FP 3-4 ☞ FP 3-7	The temperature of processing solution does not increase and the message **ADJUSTING SOLUTION TEMP.** remains on.
J/P82	Connected to the power PCB 1 (J/P28) • For detection of power voltage and frequency • Processing solution heater control • Dryer heater control • Motor speed setting detection	☞ FP 3-1 ☞ FP 3-3	**No. 044-01 VOLTAGE SETTING ERROR** has occurred. The buzzer does not stop even by pressing **NO**. The error cannot be released.

Connector No.	Connected to		Symptom
J/P83	Connects to the main control PCB (J/P1). • Circulation pump control • Signal output of each sensor and switch • Drive motor control • Alarm control • Dryer fan rotating detection signal input • Signal detection of dryer safety thermostat • Replenisher solution level sensor control • Processing solution float switch control • Signal connecting of rack stopper sensor and top cover sensor • Signal output of CD digital flowmeter	☞ FP 3-1	**No. 044-01 VOLTAGE SETTING ERROR** has occurred. The buzzer does not stop even by pressing **NO**. The error cannot be released.
J/P84	• Supplies DC+24 V to the main control PCB (J/P2). • Signal connecting of dryer thermosensor	☞ FP 1-2 ☞ FP 3-7	**No. 027-01 DRY THERMOSENSOR ERROR** has occurred. When releasing the error with **YES** + **NO**, **No. 022-01 CD SOLUTION TEMP. ERROR** has occurred. The error cannot be released.
J/P86	Receives DC+24 V from DC power supply (J/P112)	☞ FP 1-2	The power supply does not turn on even by turning on the circuit breaker.
J/P87	Connected to the control BOX cooling fan	☞ FP 3-13	The control BOX cooling fan does not rotate.
J/P89	Connected to the main control PCB (J/P10) • For the detection of input voltage • Processing solution heater control • Dryer heater control • Dryer fan control • CD circulation pump cooling fan control • Controls of Loading cover lock solenoid and pressure solenoid • Replenisher pump control • Effluent level sensor control • Ready lamp control • Chilling unit control	☞ FP 3-1	**No. 044-01 VOLTAGE SETTING ERROR** has occurred. The buzzer does not stop even by pressing **NO**. The error cannot be released.
J/P90	Connected to the backup PCB (J/P900)	☞ FP 1-2	No malfunction occurs on this condition.
J/P91	Supplies DC+5 V to the main control PCB (J/P7).	☞ FP 1-2	The display does not appear.

Connector No.	Connected to		Symptom
J/P92	Connected to the main control PCB (J/P13) • Circulation pump control • Alarm reset • Replenisher pump control • Signal output of replenisher level • Refilling water pump control • Signal output of refilling water level • Signal output of waste solution level • Exhaust fan control • Aeration pump control • CD cooling water solenoid valve control	☞FP 3-2 ☞FP 3-9	**No. 024-01 CD CIRCULATION PUMP STOPPED** has occurred. After a while, **No. 029-04 FIX REPLENISHER TANK EMPTY** has occurred. Releasing the error by **NO** returns to **No. 024-01 CD CIRCULATION PUMP STOPPED**. After releasing **No. 024-01 CD CIRCULATION PUMP STOPPED** by **YES** + **NO**, **No. 030-01 CD WASTE SOLUTION TANK FULL** occurs. After a while, it returns to **No. 024-01 CD CIRCULATION PUMP STOPPED**.

● Connecting PCB

☞6331

Connector No.	Connected to		Symptom
J/P101	Connects to the main control PCB (J/P8).	☞FP 2-2	The display does not appear.
J/P102	Display connection	☞FP 2-2	The display does not appear.
J/P103	Display connection	☞FP 2-2	The display does not appear.
J/P104	Keyboard connection	☞FP 2-2	Input cannot be executed by the keyboard.
J/P105	Buzzer connection	☞FP 2-2	The buzzer does not sound.

● DC power supply

☞6401

Connector No.	Connected to		Symptom
P111 (CN1)	Receives AC power supply from power PCB 1 (J/P23)	☞FP 1-1	The power supply does not turn on even by turning on the circuit breaker.
P112 (CN51)	Supplies DC+24 V to power PCB 2.	☞FP 1-2	The power supply does not turn on even by turning on the circuit breaker.

Symptoms resulted from blowout of fuse

● Conditions to check the blowout of fuse

The following list shows the errors which occur when turning **ON** the machine power supply with the fuses on each PCB disconnected, or the machine symptoms ("the display does not light", "the lamp does not light", "the fan does not rotate", etc.)

IMPORTANT

- Only the symptoms resulted from blowout of the fuses on each PCB are described.
- Only the PCBs of normal specification are described.
- For the fuses which have no influences on the machine condition when turning **ON** the machine power supply with the fuses on each PCB disconnected, they are described as **ANY MALFUNCTION DOES NOT OCCUR ON THIS CONDITION.**

● Table of fuses in use

Table for the reference	
☞ Power PCB 1	☞ Power PCB 2
☞ DC power supply	

● Power PCB 1

☞ 6311

Fuse No.	Function	Wiring diagram	Symptom
F1	Protection circuit for power surges (T5A / 250 V)	☞ FP 1-1	Unconfirmed, for replacement is impossible.
F2	Protection circuit for power surges (T5A / 250 V)	☞ FP 1-1	Unconfirmed, for replacement is impossible.
F3	Processing solution heater power supply protection (T6.3A / 250 V)	☞ FP 3-3	The temperature of processing solution (CD) remains to be in the **PROCESSING SOLUTION TEMPERATURE ADJUSTMENT** and does not increase. (CD processing solution heater does not operate.)
F4	Processing solution heater power supply protection (T6.3A / 250 V)	☞ FP 3-3	The temperatures of processing solutions (BL, FIX, STB) remain to be in the **PROCESSING SOLUTION TEMPERATURE ADJUSTMENT** and do not increase. (BL, STB processing solution heaters do not operate.)
F5	Processing solution heater power supply protection (T10A / 250 V)	☞ FP 3-3	The temperatures of all the processing solutions remain to be in the **PROCESSING SOLUTION TEMPERATURE ADJUSTMENT** and do not increase. (All the processing solution heaters do not operate.)
F6	Dryer heater power supply protection (T10A / 250 V)	☞ FP 3-7	No malfunction occurs on this condition. (All the dryer heaters do not operate.)
F7	Dryer heater power supply protection (T6.3A / 250 V)	☞ FP 3-7	No malfunction occurs on this condition. (The half of the dryer heaters do not operate.)
F8	Dryer heater power supply protection (T6.3A / 250 V)	☞ FP 3-7	No malfunction occurs on this condition. (The half of the dryer heaters do not operate.)
F9	Voltage detection circuit power supply protection (T1A / 250 V)	☞ FP 3-1	**No. 053-01 POWER WENT DOWN** occurs. The buzzer stops by **NO**, the error is released by **YES** + **NO**. However, it recurs immediately.

● Power PCB 2

☞6321

Fuse No.	Function	Wiring diagram	Symptom
F11	DC+24 V-1 power supply protection (T5A / 125 V)	☞FP 1-2	The power supply does not turn on even by turning on the circuit breaker.
F12	DC+24 V-2 power supply protection (T5A / 125 V)	☞FP 1-2	**No. 021-01 PROCESS.SOLN.LEVEL TOO LOW** occurs. By stopping the buzzer using **NO** and releasing the error using **YES** + **NO**, **No. 026-01 DRYER S-THERMO. ACTIVATED** occurs for a moment and then immediately **No. 021-01 PROCESS.SOLN.LEVEL TOO LOW** recurs.
F13	DC+24 V-3 power supply protection (T5A / 125 V)	☞FP 1-2	**No. 021-01 PROCESS.SOLN.LEVEL TOO LOW** occurs. By stopping the buzzer using **NO** and releasing the error using **YES** + **NO**, **No. 026-01 DRYER S-THERMO. ACTIVATED** occurs for a moment and then immediately **No. 021-01 PROCESS.SOLN.LEVEL TOO LOW** recurs.
F14	DC+24 V-4 power supply protection (T5A / 125 V)	☞FP 1-2	**No. 053-01 POWER WENT DOWN** occurs. The buzzer stops by **NO**, the error is released by **YES** + **NO**. However, it recurs immediately.
F15	DC+24 V-5 power supply protection (T5A / 125 V)	☞FP 1-2	No malfunction occurs on this condition.
F16	DC+24 V-6 power supply protection (T5A / 125 V)	☞FP 1-2	The power supply does not turn on even by turning on the circuit breaker.

● DC power supply

☞6401

Fuse No.	Function	Wiring diagram	Symptom
F1	AC input power supply protection	-	Unconfirmed, for replacement is impossible.

No. 001-01
FILM STOPPED
(N)

Alarm release
NO
Error message release
SHIFT: Loading cover lock is released.

NOTE
- When the film sensor is detecting no film, the error will be released with **YES** + **NO**.

Condition

Suffix number	Condition
-	When a certain time has passed since the feeding started after the film was inserted, the film sensor does not detect the rear end.
-	During the time in which the film sensor detects the film rear end since the feeding started after the film was inserted, the detection status of the film jam sensor does not change for a certain time.

Check Point

1	Check the film sensor status by input check.
2	Check if the feeding detection roller rotates smoothly.
3	Check whether the detection status of the film jam sensor changes or output check when rotating the feeding detection roller.

Diagnosis

Failed parts	Manual No.
Film sensor	☞6101
Rotation defect of the feeding detection roller	-
Film jam sensor	☞6101
Power PCB 2	☞6321
Main control PCB	☞6301

◆ Symptoms due to the wiring connection failure

Circuit diagram
Refer to ☞ Power PCB 2 4001.

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-3 Around power PCB 1 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-5 Loading section

No. 002-01
FILM CUTTER NOT MOVED
(N)

Alarm release
NO
Error message release
YES+NO

Condition

Suffix number	Condition
-	In the 135 film processing, even though the film cutter sensor is not open, the film sensor detects the rear end of the film.

Check Point

1	Check the film cutter sensor status by input check.
2	Check if the film cutter operates.

Diagnosis

Failed parts	Manual No.
Film cutter sensor	☞6101
Loading unit	-
Power PCB 2	☞6321
Main control PCB	☞6301

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-3 Around power PCB 1 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-5 Loading section

No. 006-01
PRESSURE SENSOR ERROR
(N)

Alarm release
NO
Error message release
YES+NO

Condition

Suffix number	Condition
-	In the film processing, when the loading cover was closed after detecting the leader card, the pressure sensor was CLOSE.

Check Point

1	Check the pressure sensor status by input check.
2	Check if the film cartridge holder operates.

Diagnosis

Failed parts	Manual No.
Pressure sensor	☞6101
Loading unit	-
Main control PCB	☞6301
Power PCB 2	☞6321

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-3 Around power PCB 1 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-5 Loading section

No. 007-01
CUTTER OPERATION ERROR
(N)

Alarm release
NO
Error message release
YES+NO

Condition

Suffix number	Condition
01	In the 135 film processing, even though the pressure sensor detects the film rear end, the film cutter sensor does not become OPEN.
02	In the film processing, when the loading cover was closed after detecting the leader card, the film cutter sensor was OPEN.

Check Point

1	Check the pressure sensor status by input check.
2	Check the film cutter sensor status by input check.
3	Check if the film cutter operates.

Diagnosis

Failed parts	Manual No.
Pressure sensor	☞6101
Film cutter sensor	☞6101
Loading unit	-
Main control PCB	☞6301
Power PCB 2	☞6321

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-3 Around power PCB 1 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-5 Loading section

No. 009-01
CLOSE LOADING COVER
(N)

Alarm release
NO
Error message release
NOTE
- Error is released when the loading cover sensor becomes CLOSE.

Condition

Suffix number	Condition
-	In the film processing, the loading cover sensor becomes OPEN before the ready lamp (green) turns ON.
-	While the ready lamp (green) is ON, it has passed over 30 seconds since the loading cover sensor become OPEN.

Check Point

1	Check the loading cover sensor status by input check.

Diagnosis

Failed parts	Manual No.
Loading cover sensor	☞6101
Power PCB 2	☞6321
Main control PCB	☞6301

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-3 Around power PCB 1 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-5 Loading section

No. 021-01
PROCESS.SOLN.LEVEL TOO LOW (N)

Alarm release
NO

Error message release
YES+NO

NOTE
- The error is not released when even one of the processing solution level float switches of each processing solution is OFF.

Condition

Suffix number	Condition
-	The processing solution level float switch became OFF.

Check Point

1	Check if the processing solution level is normal.
2	Check the processing solution level float switch status via input check.
3	Check if the replenisher solution strainer is clogged.
4	Check the pump output amount of the replenisher pump.
5	Check the pump amount of the water supply pump (SM specification only).

Diagnosis

Failed parts	Manual No.
Processing solution level float switch	☞6111
• Check that the processing solution level is normal and then check the conduction between the Pin 1 and Pin 3 of the connector of the processing solution level float switch. When there is no conduction even though the processing solution level float rises, the processing solution level float switch is defected.	
Replenisher pump	☞6111
Water supply pump	☞6111
Power PCB 2	☞6321
Main control PCB	☞6301

◆ Symptoms due to the wiring connection failure

Circuit diagram
Refer to ☞ Power PCB 2 4001.

◆ Symptoms resulted from blowout of fuse

Circuit diagram
Refer to ☞ Power PCB 2 4011.

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-3 Around power PCB 1 (2)
☞FP 2-4 Around power PCB 2 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-4 Temperature control block (3)
☞FP 3-8 Replenisher section (1)
☞FP 3-10 Refilling water section

No. 022
SOLUTION TEMP. ERROR
(N)

Alarm release
NO
Error message release
YES+NO

NOTE
- When the processing solution temperature is higher than the processing range, the error cannot be released.
- When the processing solution temperature is lower than the processing range, the error will be released and it becomes the condition of the processing solution temperature adjustment.

Condition
- After the processing solution temperature adjustment finishes, each processing solution temperature goes out of the processing range.

Suffix number	Condition
01	The CD processing solution temperature went out of the processing range.
02	The BL processing solution temperature went out of the processing range.
03	The FIX processing solution temperature went out of the processing range.
04	The STB processing solution temperature went out of the processing range.

Processing solution	Processing range	
	Upper limit	Lower limit
CD	Setting temperature +1.0°C	Setting temperature – 1.0°C
BL	Setting temperature +3.0°C	Setting temperature – 3.0°C
FIX	Setting temperature +3.0°C	Setting temperature – 3.0°C
STB	Setting temperature +3.0°C	Setting temperature – 3.0°C

NOTE
- The processing range may change depending on the process specification.

Check Point

1	Check if the chemical filter of the processing solution is clogged in which the error occurs.
2	Check if the circulation pump operates normally.
3	Check the actual temperature of the processing solution.
4	Check that the CD circulation pump cooling fan operates (When the CD processing solution temperature is out of the processing range).

Diagnosis

Blown fuses		Manual No.
F3 (CD)	Power PCB 1	☞6311
F4 (BL)		
F5 (STB)		

Failed parts	Manual No.
Circulation pump	☞6111
Thermosensor	☞6111
• Disconnect the connector of each thermosensor and measure the resistance value between Pin 1 and Pin 2 of the connectors at the thermosensor side. When the measured value differs outstandingly comparing with the value on the thermosensor check table, the thermosensor is defected.	
Processing solution heater	☞6111
• Disconnect the connector of each processing solution heater and measure the resistance value between Pin 1 and Pin 2 of the connectors at the processing solution heater side. When the measured value differs outstandingly comparing with the value on the processing solution heater check table, the processing solution heater is defected.	
CD circulation pump cooling fan	☞6111
Main control PCB	☞6301
Power PCB 1	☞6311
Power PCB 2	☞6321

NOTE
- Thermosensor check table

Actual temperature (°C)	Resistance (KΩ)
10	20.35
20	12.59
30	7.99
35	6.42
38	5.65
40	5.19
45	4.22

- Processing solution heater check table

Heater name	Resistance value (Ω)
CD heater	144
BL heater	91.2
STB heater	91.2

◆ Symptoms due to the wiring connection failure

Circuit diagram
Refer to ☞ Main control PCB 4001.
Refer to ☞ Power PCB 2 4001.

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞ FP 2-3 Around power PCB 1 (2)
☞ FP 2-4 Around power PCB 2 (2)
☞ FP 2-2 Around the main control PCB
☞ FP 2-1 Around power PCB 1
☞ FP 1-2 DC power supply circuit diagram

Detailed diagram
☞ FP 3-2 Temperature control block (1)
☞ FP 3-3 Temperature control block (3)
☞ FP 3-4 Temperature control block (2)

No. 023-01
SOLN. S-THERMO. ACTIVATED (N)

Alarm release
NO
Error message release
YES+NO

NOTE
- Error is released only when the processing solution safety thermostat is ON.

Condition

Suffix number	Condition
-	The safety thermostat which is installed in the processing solution level float switch of CD, BL and STB becomes OFF

NOTE
- The processing solution safety thermostat is activated at the following temperatures.
  46 ±3°C OPEN (OFF)
  36 ±3°C CLOSE (ON)
- If the safety thermostat of the processing solution level float switch turns OFF, all the processing solution heaters and circulation pumps will turn OFF.

Check Point

1	Check if the filter cartridge of the processing solution is clogged.
2	Check if the hose connected to the circulation pump is clogged.
3	Check the actual temperature of the processing solution.

Diagnosis

Failed parts	Manual No.
Processing solution level float switch	☞ 6111
• Disconnect the connector of the processing solution level float switch and check the conduction between Pin 6 and Pin 8 (safety thermostat) of the connector at the float switch side. If it does not become ON after a while the processing solution temperature became 33°C or less, the processing solution level float switch is defected.	
Thermosensor	☞ 6111
• Disconnect the connector of each thermosensor and measure the resistance value between Pin 1 and Pin 2 of the connectors at the thermosensor side. When the measured value differs outstandingly comparing with the value on the thermosensor check table, the thermosensor is defected.	
Power PCB 2	☞ 6321
Main control PCB	☞ 6301

NOTE
- Thermosensor check table

Actual temperature (°C)	Resistance (KΩ)
10	20.35
20	12.59
30	7.99
35	6.42
38	5.65
40	5.19
45	4.22

◆ Symptoms due to the wiring connection failure

Circuit diagram
Refer to ☞ Power PCB 2 4001.

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞ FP 2-3 Around power PCB 1 (2)
☞ FP 2-2 Around the main control PCB
☞ FP 1-2 DC power supply circuit diagram

Detailed diagram
☞ FP 3-4 Temperature control block (3)

No. 024
CIRCULATION PUMP STOPPED (N)

Alarm release
NO
Error message release
YES+NO

NOTE
- The error is released when rotating the dryer fan.

Condition

- The built-in motion detector in the circulation pump detects that the pump rotation has stopped.

Suffix number	Condition
01	Detects the rotation stop of the CD circulation pump
02	Detects the rotation stop of the BL circulation pump
04	Defects the rotation stop of the FIX1 circulation pump
08	Defects the rotation stop of the FIX2 circulation pump
10	Detects the rotation stop of the STB1 circulation pump
20	Detects the rotation stop of the STB2 circulation pump
40	Detects the rotation stop of the STB3 circulation pump

Check Point

1	Check if the chemical filter of the processing solution is clogged in which the error occurs.
2	Check if the hose connected to the circulation pump is clogged.

Diagnosis

Failed parts	Manual No.
Circulation pump	☞ 6111
Power PCB 2	☞ 6321
Main control PCB	☞ 6301

◆ Symptoms due to the wiring connection failure

Circuit diagram
Refer to ☞ Main control PCB 4001.
Refer to ☞ Power PCB 2 4001.

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞ FP 2-3 Around power PCB 1 (2)
☞ FP 1-2 DC power supply circuit diagram

Detailed diagram
☞ FP 3-2 Temperature control block (1)

No. 027
THERMOSENSOR ERROR
(N)

Alarm release
NO
Error message release
YES+NO

NOTE
- It is possible to release the error when the thermosensor detection temperature becomes within the range from 0°C to 100°C.

Condition

Suffix number	Condition
-	Thermosensor detects the temperature such as under 0°C or over 100°C.

Check Point

1	Check the actual temperature of the processing solution.

Diagnosis

Failed parts	Manual No.
Thermosensor	☞6111
• Disconnect the connector of each thermosensor and measure the resistance value between Pin 1 and Pin 2 of the connectors at the thermosensor side. When the measured value differs outstandingly comparing with the value on the thermosensor check table, the thermosensor is defected.	
Main control PCB	☞6301
Power PCB 2	☞6321

NOTE
- Processing solution thermosensor check table

Actual temperature (°C)	Resistance (KΩ)
10	20.35
20	12.59
30	7.99
35	6.42
38	5.65
40	5.19
45	4.22

- Dryer thermosensor check table

Actual temperature (°C)	Resistance (KΩ)
10	19.07
20	11.92
30	7.66
40	5.05
50	3.41
60	2.35
70	1.65
80	1.19

◆ Symptoms due to the wiring connection failure

Circuit diagram
Refer to ☞Main control PCB 4001.
Refer to ☞Power PCB 2 4001.

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-2 Around the main control PCB
☞FP 2-4 Around power PCB 2 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-4 Temperature control block (3)
☞FP 3-7 Dryer main body section

No. 028-01
DRYER FAN STOPPED
(N)

Alarm release
NO
Error message release
YES+NO

NOTE
- It is possible to release the error when rotating the dryer fan.

Condition

Suffix number	Condition
-	The built-in motion detector in the dryer fan detects that the fan has stopped.

Check Point

1	Check if the dryer fan is rotating.

Diagnosis

Failed parts	Manual No.
Dryer fan	☞6111
• When the fan does not rotate while the LED16 of the power PCB 2 is ON, the dryer fan is defected.	
Power PCB 2	☞6321
Main control PCB	☞6301

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-3 Around power PCB 1 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-7 Dryer main body section

No. 029[N]
REPLENISHER TANK EMPTY
(N)

Alarm release
NO
Error message release
YES+NO

NOTE
- When the replenisher solution is not added, the error occurs again when the next replenishment is carried out.

Condition

Suffix number	Condition
01	The CD replenisher level sensor becomes OFF.
02	The BL replenisher level sensor becomes OFF.
04	The FIX replenisher level sensor becomes OFF.
08	The NS replenisher level sensor becomes OFF.
10	The STB replenisher level sensor becomes OFF.

Check Point

1	Check the remaining amount of each replenisher solution.
2	Check the replenisher level sensor status via input check.

Diagnosis

Failed parts	Manual No.
Replenisher level sensor	☞6111
• Disconnect the connector of the replenisher level sensor and measure the resistance value between Pin 1 and Pin 2 of the connectors at the replenisher level sensor side. When the sensor section temperature is between 10°C and 35°C, if the resistance value does not become between 1.5kΩ and 4kΩ, the replenisher level sensor is defect.	
Power PCB 2	☞6321
Main control PCB	☞6301

NOTE
- The hot thermister is used for the replenisher level sensor. When the hot thermister is not supplied the current, the resistance values in wet with the solution and in dry are the same.
  Accordingly, when measuring the resistance value, the condition either in wet with solution or in dry is OK.

◆ Symptoms due to the wiring connection failure

Circuit diagram
Refer to ☞Main control PCB 4001.
Refer to ☞Power PCB 2 4001.

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞ FP 2-4 Around power PCB 2 (2)
☞ FP 1-2 DC power supply circuit diagram

Detailed diagram
☞ FP 3-9 Replenisher section 2

No. 030
WASTE SOLUTION TANK FULL (N)

Alarm release
NO
Error message release
Automatic release when OFF the effluent level sensor

NOTE
- Error will be released when the effluent level sensor is OFF.

Condition

Suffix number	Condition
01	The CD replenisher level sensor becomes OFF.
02	The BL replenisher level sensor becomes OFF.
04	The FIX replenisher level sensor becomes OFF.
08	The STB replenisher level sensor becomes OFF.

Check Point

1	Empty the waste solution tank.
2	Check the effluent level sensor status via input check.

Diagnosis

Failed parts	Manual No.
Effluent level sensor	☞ 6111
• Disconnect the connector of the effluent level sensor and measure the resistance value between Pin 1 and Pin 2 of the connectors at the effluent level sensor side. When the sensor section temperature is between 10°C and 35°C, if the resistance value does not become between 1.5kΩ and 4kΩ, the effluent level sensor is defected.	
Power PCB 2	☞ 6321
Main control PCB	☞ 6301

NOTE
- The hot thermister for the effluent level sensors is used. When the hot thermister is not supplied the current, its resistance values in wet with the solution and in dry are the same.
  Accordingly, when measuring the resistance value, the condition either in wet with solution or in dry is OK.

◆ Symptoms due to the wiring connection failure

Circuit diagram
Refer to ☞ Main control PCB 4001.
Refer to ☞ Power PCB 2 4001.

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞ FP 2-3 Around power PCB 1 (2)
☞ FP 1-2 DC power supply circuit diagram

Detailed diagram
☞ FP 3-12 Effluent section

No. 031-01[N]
TURN ON REPLENISHMENT SWITCH (N)

Alarm release
NO
Error message release
Automatic release when turning ON the replenishment switch

NOTE
- It is not possible to release the error when the replenishment lack time is over 600 seconds.
  Automatic release is executed when clearing the replenishment lack time.

Condition

Suffix number	Condition
-	It has passed 40 minutes or more since turning OFF the replenishment switch.
-	The replenishment lack time becomes over 600 seconds.

Check Point

1	Check the replenishment lack time

Diagnosis

Failed parts	Manual No.
Main control PCB	☞6301

No. 032-01
TURN ON DRIVE SWITCH (N)

Alarm release
NO
Error message release
Released automatically when turning ON the replenishment switch

Condition

Suffix number	Condition
-	The drive switch turned off during film processing.

NOTE
- If the drive switch is turned OFF in the standby condition which no film is being processed, it displays only error without any alarms.

Check Point

1	Make sure that the drive switch is turned ON.

Diagnosis

Failed parts	Manual No.
Drive switch	☞6101
Power PCB 2	☞6311
Main control PCB	☞6301

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-3 Around power PCB 1 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-6 Drive section

No. 033-01
A/D CONVERTER ERROR
(N)

Alarm release
NO
Error message release
YES+NO

NOTE
- If the same condition happens after the error cleared, the same error will occur again.

Condition

Suffix number	Condition
-	A/D conversion is not carried out normally

Diagnosis

Failed parts	Manual No.
Main control PCB	☞6301
Power PCB 2	☞6321

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 1-1 AC/DC power supply connecting
☞FP 1-2 DC power supply circuit diagram

No. 034-01
CLOSE TOP COVER
(N)

Alarm release
NO
Error message release
Released automatically when closing the top cover

Condition

Suffix number	Condition
-	The top cover sensor turned OFF during film processing.

NOTE
- If the top cover sensor turns OFF in the standby condition which no film is being processed, it displays only error without any alarms.

Check Point

1	Check that the status of the top cover sensor via input check.

Diagnosis

Failed parts	Manual No.
Top cover sensor	☞6111
Power PCB 2	☞6321
Main control PCB	☞6301

◆ Symptoms due to the wiring connection failure

Circuit diagram
Refer to ☞Power PCB 2 4001.

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-3 Around power PCB 1 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-13 Processor section

No. 036-01[SM] REPLENISHER / WATER SUPPLY PUMP OPERATION ERROR (N)

Alarm release
NO
Error message release
YES+NO

Condition

Suffix number	Condition
-	Although a certain time has passed since the replenisher pump or water supply pump started to operate, the pump home sensor does not turn OFF.
-	Although a certain time has passed since the pump home sensor turned OFF, it does not turn ON.

NOTE
- This error occurs only in SM specification.
- The related replenisher pump or water supply pump name is displayed on the right side of the first line.

Check Point

1	Confirm that the strainer is not clogged.
2	Confirm that the replenisher or water supply pump is operating.
3	Confirm the pump home sensor status via input check.

Diagnosis

Failed parts	Manual No.
Replenishment pump and water supply pump	☞6111
Power PCB 2	☞6321
Main control PCB	☞6301

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-4 Around power PCB 2 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-8 SM Replenisher section (1)
☞FP 3-11 Water supply section

No. 037[SM] __ CHECK REMAINS IN REPLENISHMENT PACKAGE (N)

Alarm release
NO
Error message release
Released automatically by resetting the replenisher package or setting the new replenisher package

Condition

- It is considered that replenishment for the amount of the replenisher package is carried out, but the replenisher sensor does not turn OFF.

Suffix number	Condition
01	Whichever replenisher solution among CD-A, CD-B, CD-C and STB in the F1 replenisher package is not emptied.
02	One of the replenisher solutions in the F2 replenisher package such as BL and FIX is not emptied.

Check Point

1	Confirm that the strainer is not clogged.
2	Check the pump output amount of the replenisher pump.
3	Check the replenisher sensor detection status via input check.

Diagnosis

Failed parts	Manual No.
Replenisher pump	☞6111
Replenisher sensor	☞6111
SM sensor PCB	☞6341
Power PCB 2	☞6321
Main control PCB	☞6301

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-4 Around power PCB 2 (2)
☞FP 2-5 Replenishment unit (SM specification)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-8 SM Replenisher section (1)
☞FP 3-9 SM Replenisher section (2)

No. 038[SM] __ REPLENISHMENT PACKAGE NOT ATTACHED (N)

Alarm release
NO

Error message release
Released automatically when turning ON the replenisher package sensor

Condition

Suffix number	Condition
01	Replenisher package sensor (F1) is OFF.
02	Replenisher package sensor (F2) is OFF.

Check Point

1	Check whether the replenisher package is correctly set
2	Check the replenisher package sensor status via input check.

Diagnosis

Failed parts	Manual No.
Replenishment package sensor	☞6111
SM sensor PCB	☞6341
Power PCB 2	☞6321
Main control PCB	☞6301

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-5 Replenishment unit (SM specification)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-9 SM Replenisher section (2)

No. 040-01 DRIVE MOTION ERROR (N)

Alarm release
NO

Error message release
YES+NO

NOTE
- The errors can be released when the rotation speed of drive motor attains the tolerance.

Condition

Suffix number	Condition
-	Even though the drive switch is ON, the rotation speed of the drive motor does not attain the tolerance.

NOTE
- Drive motor is the motion detector included and monitors the rotation speed.

Check Point

1	Check the rotation of each processing solution rack and dryer rack.

Diagnosis

Failed parts	Manual No.
Drive motor	☞6111
Motor driver	☞6201
Power PCB 2	☞6321
Main control PCB	☞6301

◆ Symptoms due to the wiring connection failure

Circuit diagram
Refer to ☞Main control PCB 4001.
Refer to ☞Power PCB 2 4001.

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-3 Around power PCB 1 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-6 Drive section

No. 041-01 CIRCULATION LOW (N)

Alarm release
NO

Error message release
YES+NO

NOTE
- The error can be released when the CD circulation amount becomes 3L/min or more.

Condition

Suffix number	Condition
-	CD circulation amount becomes 3L/min or less and it has last 1 minute or more.

NOTE
- It is an error which occurs in the machine installing the digital flowmeter (option).

Check Point

1	Check whether the CD chemical filter is not clogged
2	Check whether the circulation hose of the refilling water tank is not clogged.

Diagnosis

Failed parts	Manual No.
Circulation pump (CD)	☞6111
Digital flowmeter	☞6111
Power PCB 2	☞6321
Main control PCB	☞6301

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-4 Around power PCB 2 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-14 Optional section

No. 042-01[N] REFILL WATER INTO REFILLING WATER TANK (N)

Alarm release
NO

Error message release
Released automatically when turning ON the refilling water tank level sensor

Condition

Suffix number	Condition
-	The refilling water tank level sensor is turned OFF.

Check Point

1	Check whether the refilling water tank has water inside.
2	Check the refilling water tank level sensor status via input check.

NOTE
- This error does not occur in SM specification.

Diagnosis

Failed parts	Manual No.
Refilling water tank level sensor	☞6111
• Disconnect the connector of the refilling water tank level sensor and measure the resistance value between Pin 1 and Pin 2 of the connectors at the refilling water tank level sensor side. When the sensor section temperature is between 10°C and 35°C, if the resistance value does not become between 1.5kΩ and 4kΩ, the refilling water tank level sensor is defected.	
Power PCB 2	☞6321
Main control PCB	☞6301

NOTE
- The hot thermister is used for the refilling water tank level sensor.
  When the hot thermister is not supplied the current, the resistance values in wet with the solution and in dry are the same.
  Accordingly, when measuring the resistance value, the condition either in wet with solution or in dry is OK.

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-4 Around power PCB 2 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-9 Replenisher section (2)

No. 043[SM]
__ REPLENISHMENT PACKAGE EMPTY (N)

Alarm release
NO
Error message release
Released automatically when replacing the replenisher package

NOTE
- The error is released when the replenisher package sensor turns ON → OFF → ON and the replenisher sensor turns ON.

Condition

Suffix number	Condition
01	Whichever replenisher sensor of the replenisher solution among CD-A, CD-B, CD-C and STB in F1 replenisher package turns OFF and the other replenisher solutions are forcibly replenished.
02	The replenisher sensor of either of the replenisher solutions such as BL and FIX in F2 replenisher package turns OFF and the other is forcibly replenished.

Check Point

1	Check the replenisher sensor status via input check.

Diagnosis

Failed parts	Manual No.
Replenisher sensor	☞6111
SM sensor PCB	☞6341
Main control PCB	☞6301

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-5 Replenishment unit (SM specification)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-9 SM Replenisher section (2)

No. 044-01
VOLTAGE SETTING ERROR (N)

Alarm release
NO
Error message release
Not available

Condition

Suffix number	Condition
-	When the power supply of this machine turns ON, the connection among the power supply and voltage supplied to this machine, the power voltage set at DS1 of power PCB 1 and J25 is not matched.

Check Point

1	Check the voltage of the power supply connected to this machine.
2	Check the power voltage setting on power PCB 1.
3	Check the J25 connection of the power PCB 1.

Diagnosis

Failed parts	Manual No.
Power PCB 1	☞6311
Power PCB 2	☞6321
Main control PCB	☞6301

◆ Symptoms due to the wiring connection failure

Circuit diagram
Refer to ☞Main control PCB 4001.
Refer to ☞Power PCB 1 4001.
Refer to ☞Power PCB 2 4001.

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-1 Around power PCB 1
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-1Voltage detection section

No. 045-01
SET THE RACK STOPPER (N)

Alarm release
NO
Error message release
Released automatically when turning ON the rack stopper sensor

Condition

Suffix number	Condition
-	The rack stopper sensor turned OFF.

Check Point

1	Check whether the rack stopper is locked.
2	Check the rack stopper sensor status via input check.

Diagnosis

Failed parts	Manual No.
Rack stopper sensor	☞6111
Main control PCB	☞6301
Power PCB 2	☞6321

◆ Symptoms due to the wiring connection failure

Circuit diagram
Refer to ☞Power PCB 2 4001.

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-3 Around power PCB 1 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-13 Processor section

No. 046-01
TURN OFF THE CIRCUIT BREAKER (N)

Alarm release
NO
Error message release
Released automatically when turning ON either of the top cover sensor or the rack stopper sensor

Condition

Suffix number	Condition
-	Both of the top cover sensor and the rack stopper sensor turned OFF.

Check Point

1	Check whether the rack stopper is locked.
2	Check the status of the top cover sensor and the rack stopper sensor via input check.

Diagnosis

Failed parts	Manual No.
Rack stopper sensor	☞6111
Main control PCB	☞6301

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-3 Around power PCB 1 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-13 Processor section

No. 047-01[SM]
WATER SUPPLY TANK EMPTY
(N)

Alarm release
NO
Error message release
Released automatically when turning ON the water supply tank level sensor

Condition

Suffix number	Condition
-	The water supply tank level sensor turned OFF.

Check Point

1	Check whether the water supply tank has water inside.
2	Check the water supply tank level sensor status via input check.

NOTE
- This error occurs only for SM specification.

Diagnosis

Failed parts	Manual No.
Water supply level sensor	☞6111
• Disconnect the connector of the water supply tank level sensor and measure the resistance value between Pin 1 and Pin 2 of the connectors at the water supply tank level sensor side. When the sensor section temperature is between 10°C and 35°C, if the resistance value does not become between 1.5kΩ and 4kΩ, the water supply tank level sensor is defected.	
Power PCB 2	☞6321
Main control PCB	☞6301

NOTE
- The hot thermister is used for the water supply tank level sensor.
  When the hot thermister is not supplied the current, the resistance values in wet with the solution and in dry are the same.
  Accordingly, when measuring the resistance value, the condition either in wet with solution or in dry is OK.

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-4 Around power PCB 2 (2)
☞FP 1-2 DC power supply circuit diagram

Detailed diagram
☞FP 3-9 Replenisher section (2)

No. 051-01
SET DATE & TIME
(N)

Alarm release
NO
Error message release
YES+NO

Condition

Suffix number	Condition
-	When turning ON the power supply of this machine, the setting of the date or time was unlikely wrong.

Check Point

1	Set the date and time.

Diagnosis

Failed parts	Manual No.
Main control PCB	☞6301

No. 052-01
INPUT MAIN DATA
(N)

Alarm release
NO
Error message release
Set the processing specification or read the data of the backup floppy disk.

Condition

Suffix number	Condition
-	Processing specification is not set

Check Point

1	Set the processing specification

Diagnosis

Failed parts	Manual No.
Main control PCB	☞6301

No. 053-01
POWER WENT DOWN
(N)

Alarm release
NO
Error message release
YES+NO

NOTE
- Error can be released when the power supply frequency becomes 33Hz.

Condition

Suffix number	Condition
-	Frequency of the power supply for this machine was detected that it became under 33Hz.

Diagnosis

Blown fuses		Manual No.
F7	Power PCB 1	☞6311

Failed parts	Manual No.
Power PCB 1	☞6311
Power PCB 2	☞6321
DC power supply	☞6401
Main control PCB	☞6301

◆ Symptoms resulted from blowout of fuse

Circuit diagram
Refer to ☞Power PCB 1 4011.

NOTE
- Electrical circuit diagram(s) (references)

Detailed diagram
☞FP 3-1Voltage detection section

No. 081-01
FLOPPY DISK READING ERROR (N)

Alarm release
NO
Error message release
YES+NO

Condition

Suffix number	Condition
-	The data in floppy disk could not be read normally.

Check Point

1	Carry out the head cleaning of the floppy disk drive.

Diagnosis

Failed parts	Manual No.
Floppy disk	-
Floppy disk drive	-
Main control PCB	☞6101

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-2 Around the main control PCB

No. 082-01
FLOPPY DISK WRITING ERROR (N)

Alarm release
NO
Error message release
YES+NO

Condition

Suffix number	Condition
-	The data could not be written to the floppy disk normally.

Check Point

1	Check if the floppy disk is not write protected.
2	Carry out the head cleaning of the floppy disk drive.

Diagnosis

Failed parts	Manual No.
Floppy disk	-
Floppy disk drive	-
Main control PCB	☞6101

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-2 Around the main control PCB

No. 083-01
FLOPPY DISK FORMAT. ERROR (N)

Alarm release
NO
Error message release
YES+NO

Condition

Suffix number	Condition
-	The format of floppy disk could not be completed.

Check Point

1	Check if the floppy disk is not write protected.
2	Carry out the head cleaning of the floppy disk drive.

Diagnosis

Failed parts	Manual No.
Floppy disk	-
Floppy disk drive	-
Main control PCB	☞6101

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-2 Around the main control PCB

No. 084-01
DATA FLOPPY DISK NOT INSERTED YET (N)

Alarm release
NO
Error message release
YES+NO

Condition

Suffix number	Condition
-	It is upgraded without setting a data floppy disk.
	The floppy disk with no data was set.
	The floppy disk with different contents data was set.

Diagnosis

Failed parts	Manual No.
Floppy disk	-
Floppy disk drive	-
Main control PCB	☞6101

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-2 Around the main control PCB

No. 085-01
SYSTEM PROGRAM FLOPPY DISK NOT INSERTED YET (N)

Alarm release
NO

Error message release
YES+NO

Condition

Suffix number	Condition
-	It was upgraded without setting a system program floppy disk.
	The floppy disk with different contents data was set.

Diagnosis

Failed parts	Manual No.
Floppy disk	-
Floppy disk drive	-
Main control PCB	☞6101

NOTE
- Electrical circuit diagram(s) (references)

Circuit diagram
☞FP 2-2 Around the main control PCB

No. 201 [F] WATER IS INSUFFICIENT FOR MIXING. ADD WATER

Alarm release
NO

Error message release
You can cancel the error by selecting **YES+NO** or the error is automatically canceled when the replenisher solution level sensor (upper water level) turns on.

NOTE
- The system can stop opening using **YES+NO**, cancel the error and continue to work. However, ☞ No. 268 [F] **NC_ REPL SYSYTEM IS ABNORMAL** occurs when more than a specified number of films are processed.
- When the power supply turns on after being reset, the attention message, **CONTINUE MIXING SOLUTION ?** is displayed.

Condition

Condition
When the replenishment package started opening, the replenisher solution level sensor of the water supply tank (upper water level) was off.

For details of operation specification, refer to ☞ 5501.

Check Point

Add water to the water supply tank.	-
Check the status of the replenisher solution level sensor of the water supply tank (upper water level) with Input Check.	☞ 3071

Diagnosis

Failed parts	Manual No.
Replenishment solution level sensor (upper water level)	☞ 6111
F replenishment/ I/O PCB	☞ 6361
Main control PCB	☞ 6301

NOTE
- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 202 [F] NC_ REPL CARTRIDGE USED UP. REPLACE IT WITH A NEW ONE. (N)

Alarm release
NO

Error message release
You can cancel the error by selecting **YES+NO** or the error is automatically canceled when the replenisher cartridge sensor switches from **OFF→ON**.

NOTE
- The system can stop mixing solution using **YES+NO**, cancel the error and continue to work. However, ☞ No. 268 [F] **NC_ REPL SYSYTEM IS ABNORMAL** occurs when more than a specified number of films are processed.
- When the power supply turns on after being reset, the attention message, **CONTINUE MIXING SOLUTION ?** is displayed.

Condition

Condition
After the replenisher cartridge was opened, all the (lower) replenishment solution level sensors of the replenisher tanks for the replenisher cartridge did not detect anything.

Suffix number	Condition
01	NC1 cartridge • N1RA (lower) replenishment solution level sensor • N1RB (lower) replenishment solution level sensor
02	NC2 cartridge • N2R (lower) replenishment solution level sensor • N3R (lower) replenishment solution level sensor • N4R (lower) replenishment solution level sensor

NOTE
- The cartridge set is raised, and then an error occurs.

For details of operation specification, refer to ☞ 5501.

Check Point

Check that no empty cartridge is set.	-

Diagnosis

Failed parts	Manual No.
For the message with suffix number 01 • N1RA (lower) replenishment solution level sensor • N1RB (lower) replenishment solution level sensor	☞ 6111
For the message with suffix number 02 • N2R (lower) replenishment solution level sensor • N3R (lower) replenishment solution level sensor • N4R (lower) replenishment solution level sensor	
F replenishment/ I/O PCB	☞ 6361

NOTE
- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 204 [F] NC_ SET REPL CARTRIDGE. (N)

Alarm release
NO

Error message release
You can cancel the error by selecting **YES+NO** or the error is automatically canceled when the replenisher cartridge sensor switches from **OFF→ON**.

NOTE
- The system can stop mixing solution using **YES+NO**, cancel the error and continue to work. However, ☞ No. 268 [F] **NC_ REPL SYSYTEM IS ABNORMAL** occurs when more than a specified number of films are processed.
- When the power supply turns on after being reset, the attention message, **CONTINUE MIXING SOLUTION ?** is displayed.

Condition

Condition
The system tried to open the replenisher cartridge, but no replenisher cartridge was loaded.

Suffix number	Condition
01	NC1 cartridge
02	NC2 cartridge

NOTE
- The cartridge set is raised, and then an error occurs.

For details of operation specification, refer to ☞ 5501.

Check Point

Check that the replenisher cartridge is correctly set.	-
Check the state of the replenisher cartridge sensor using Input Check.	☞ 3071

Diagnosis

Failed parts	Manual No.
NC1 replenisher cartridge set sensor	☞ 6111
NC2 replenisher cartridge set sensor	
Power PCB 2	☞ 6321

NOTE
- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 206 [F] NC_ CARTRIDGE SETTING UNIT DOES NOT GO UP. (N)

Alarm release
NO

Error message release
YES+NO

NOTE

- The system can stop mixing solution using **YES+NO**, cancel the error and continue to work. However, ☞ No. 268 [F] **NC_ REPL SYSYTEM IS ABNORMAL** occurs when more than a specified number of films are processed.
- When the power supply turns on after being reset, the attention message, **CONTINUE MIXING SOLUTION ?** is displayed.

Condition

Condition
The system tried to raise the replenisher cartridge set, but the replenisher cartridge position sensor (upper) did not detect anything during a specified time.

Suffix number	Condition
01	NC1 cartridge
02	NC2 cartridge

For details of operation specification, refer to ☞ 5501.

Check Point

1	Confirm that there is nothing stuck in the replenisher cartridge section.

Diagnosis

Troubleshooting flow	Manual No.
☞ When No.206 NC_CARTRIDGE SETTING UNIT DOES NOT GO UP. and No.272 OPENING MOTOR OR UPPER DETECTOR IS ABNORMAL occur	☞ 4991

Failed parts	Manual No.
NC1 replenisher cartridge position sensor (upper)	☞ 6111
NC2 replenisher cartridge position sensor (upper)	
NC1 replenisher cartridge open/close motor	
NC2 replenisher cartridge open/close motor	
F replenishment/ I/O PCB	☞ 6361
Power PCB 2	☞ 6321

NOTE

- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 208 [F] NC_ CARTRIDGE SETTING UNIT DOES NOT GO DOWN. (N)

Alarm release
NO

Error message release
YES+NO

NOTE
- The system can stop mixing solution using **YES+NO**, cancel the error and continue to work. However, ☞ No. 268 [F] **NC_ REPL SYSYTEM IS ABNORMAL** occurs when more than a specified number of films are processed.
- When the power supply turns on after being reset, the attention message, **CONTINUE MIXING SOLUTION ?** is displayed.

Condition

Condition
The system tried to lower the replenisher cartridge set, but the replenisher cartridge position sensor (lower) did not detect anything during a specified time.

Suffix number	Condition
01	NC1 cartridge
02	NC2 cartridge

NOTE
- The cartridge set is raised, and then an error occurs.

For details of operation specification, refer to ☞ 5501.

Check Point

1	Confirm that there is nothing stuck in the replenisher cartridge section.

Diagnosis

Troubleshooting flow	Manual No.
☞ When No.208 NC_CARTRIDGE SETTING UNIT DOES NOT GO DOWN occurs	☞ 4991

Failed parts	Manual No.
NC1 replenisher cartridge position sensor (upper)	☞ 6111
NC2 replenisher cartridge position sensor (upper)	
NC1 replenisher cartridge open/close motor	
NC2 replenisher cartridge open/close motor	
F replenishment/ I/O PCB	☞ 6361
Power PCB 2	☞ 6321

NOTE
- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 212 [F] NC_ CLOSE THE DOOR OF THE CARTRIDGE SETTING UNIT. (N)

Alarm release
NO

Error message release
The error is automatically canceled when the interlock switch turns on

NOTE
- Starts mixing water and replenishment solution when the interlock switch turns on.
- When the power supply turns on after being reset, the attention message, **CONTINUE MIXING SOLUTION ?** is displayed.

Condition

Condition
The system tried to open the replenisher cartridge, interlock switch (replenisher section door 1 or 2) was off.

Suffix number	Condition
01	NC1 cartridge
02	NC2 cartridge

For details of operation specification, refer to ☞ 5501.

Check Point

1	Confirm that the replenisher section doors are closed.

Diagnosis

Failed parts	Manual No.
INTERLOCK (REPL SEC 1)	☞ 6111
INTERLOCK (REPL SEC 2)	
F replenishment/ I/O PCB	☞ 6361

NOTE
- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 214 [F] NC_ CARTRIDGE SETTING UNIT DOOR WAS OPEN WHILE MIXING.(N)

Alarm release
NO

Error message release
YES+NO

NOTE
- Select **YES+NO** to stop mixing water and replenisher solution.
- When the power supply turns on after being reset, the attention message, **CONTINUE MIXING SOLUTION ?** is displayed.

Condition

Condition
While water is being mixed with replenisher solution, interlock switch (replenisher section door 1 or 2) turns off.

Suffix number	Condition
01	NC1 cartridge
02	NC2 cartridge

Check Point

1	Confirm that the replenisher section doors are closed.

Diagnosis

Troubleshooting flow	Manual No.
☞ When No.214 NC_CARTRIDGE SETTING UNIT DOOR WAS OPEN WHILE MIXING. occurs	☞ 4991

Failed parts	Manual No.
INTERLOCK (REPL SEC 1)	☞ 6111
INTERLOCK (REPL SEC 2)	
F replenishment/ I/O PCB	☞ 6361

NOTE
- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 216 [F]
OUT OF WATER
ADD WATER

Alarm release
NO
Error message release
The error is automatically canceled when the replenisher level sensor (lower water level) turns on.

Condition

Condition
The replenisher level sensor of the refilling water tank (lower water level) turns off.
When compensating for evaporation started, the replenisher level sensor of the water supply tank (lower water level) turned off.

Suffix number	Condition
01	NC1 cartridge
02	NC2 cartridge

Check Point

1	Add water to the water supply tank.

Diagnosis

Failed parts	Manual No.
Replenishment solution level sensor (lower water level)	☞6111
F replenishment/ I/O PCB	☞6361

NOTE
- Electrical circuit diagram(s) (references)

Wiring diagram
☞8900

No. 217 [F]
WATER LEVEL DETEC ABNORMAL (N)

Alarm release
NO
Error message release
The error is canceled when **YES+NO** is selected or the power supply is reset.

NOTE
- After the power supply is reset, the error reoccur if it is not yet treated.

Condition

Condition
When the power supply is on, the replenisher solution level sensor (upper water level) is on and replenisher solution level sensor (lower water level) is off.

Diagnosis

Failed parts	Manual No.
Replenishment solution level sensor (upper water level)	☞6111
Replenishment solution level sensor (lower water level)	
F replenishment/ I/O PCB	☞6361

NOTE
- Electrical circuit diagram(s) (references)

Wiring diagram
☞8900

No. 220 [F] ____ REPL NOT PREPARED (N)

Alarm release
NO
Error message release
YES+NO

NOTE

- The system can stop mixing solution using **YES+NO**, cancel the error and continue to work. However, ☞ No. 268 [F] **NC_ REPL SYSYTEM IS ABNORMAL** occurs when more than a specified number of films are processed.
- When the power supply turns on after being reset, the attention message, **CONTINUE MIXING SOLUTION ?** is displayed.

Condition

Condition
After water was mixed with replenishment solution, (upper) replenisher solution level sensor did not turn on. However, no error occurs regarding NR2 and NR3 when opened the first time.

Suffix number	Condition
01	N1RA
02	N2R
04	N3R
08	N4R
10	N1RB

NOTE

- The cartridge set is raised, and then an error occurs.

For details of operation specification, refer to ☞ 5501.

Diagnosis

Troubleshooting flow	Manual No.
☞ When No.220 No replenishment solution is produced. occurs	☞ 4991

When solution level is incorrectly detected	Manual No.
Each (upper) replenisher solution level sensor	☞ 6111
F replenishment/ I/O PCB	☞ 6361

Cartridge cleaning-related error	Manual No.
Check the pumps used to clean the cartridge for faults.	-
Check that the cleaning nozzle is not blocked.	-
Cartridge cleaning valves	☞ 6111
F replenishment/ I/O PCB	☞ 6361

Solution mixing-related error	Manual No.
Check the pumps used to mix replenisher solution for faults.	-
Check reversing valves for faults.	-
Agitation valves	☞ 6111
Replenisher cartridge cleaning pump	
Replenisher pump	
F replenishment/ I/O PCB	☞ 6361

Cartridge loading part-related error	Manual No.
Check that each replenisher cartridge is correctly set.	-
Replenisher cartridge set sensors	☞ 6111
Replenisher cartridge position sensors (lower)	
Power PCB 2	☞ 6321

NOTE

- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 230 [F] ____ LEVEL DETECT ABNORMAL (N)

Alarm release
NO
Error message release
YES+NO

NOTE

- The system can stop mixing solution using **YES+NO**, cancel the error and continue to work. However, ☞ No. 268 [F] **NC_ REPL SYSYTEM IS ABNORMAL** occurs when more than a specified number of films are processed.
- After the power supply is reset, the error reoccur if it is not yet treated.

Condition

Condition
Regarding NC1 cartridge, when the power supply is on, the replenisher solution level sensor (upper) is on and replenisher solution level sensor (lower) is off.
Regarding NC2 cartridge, when the power supply is on, the replenisher solution level sensor (upper) is on and replenisher solution level sensor (lower) is off, or the replenisher solution level sensor (middle) is on and replenisher solution level sensor (lower) is off.

Suffix number	Condition
01	N1RA
02	N2R
04	N3R
08	N4R
10	N1RB

Diagnosis

Failed parts	Manual No.
(lower) Replenisher solution level sensors	☞ 6111
F replenishment/ I/O PCB	☞ 6361

NOTE

- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 235 [F] NC_ SETTING UNIT LIMIT DETECTOR ABNORMAL (N)

Alarm release
NO
Error message release
YES+NO

NOTE

- The system can stop mixing solution using **YES+NO**, cancel the error and continue to work. However, ☞ No. 268 [F] **NC_ REPL SYSYTEM IS ABNORMAL** occurs when more than a specified number of films are processed.
- After the power supply is reset, the error reoccur if it is not yet treated.

Condition

Condition
When the power supply is on or the replenisher cartridge starts to open, the replenisher cartridge position sensors (upper and lower) turn DARK.

Suffix number	Condition
01	NC1
02	NC2

For details of operation specification, refer to ☞ 5501.

Diagnosis

Failed parts	Manual No.
Replenisher cartridge position sensors (upper)	☞ 6111
Replenisher cartridge position sensors (lower)	
Power PCB 2	☞ 6321

NOTE

- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 237 [F] NC_ REPL LOWER LEVEL ABNORMAL (N)

Alarm release
NO
Error message release
YES+NO

NOTE
- The system can stop mixing solution using **YES+NO**, cancel the error and continue to work. However, ☞ No. 268 [F] **NC_ REPL SYSYTEM IS ABNORMAL** occurs when more than a specified number of films are processed.
- After the power supply is reset, the error reoccur if it is not yet treated.

Condition

Suffix number	Condition
01	When NC1 replenisher cartridge is opened, one of the replenisher solution level sensors (upper and lower) of N1RA, N2R and N3R has detected replenishment solution.
02	When NC2 replenisher cartridge is opened, one of the replenisher solution level sensors (upper and lower) of N1RB and N4R has detected replenishment solution.

For details of operation specification, refer to ☞ 5501.

Diagnosis

Failed parts	Manual No.
Replenisher solution level sensor	☞ 6111
F replenishment/ I/O PCB	☞ 6361

NOTE
- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 255 [F] ____ LOWER DETECTOR DOES NOT DETECT SOLUTION. (N)

Alarm release
NO
Error message release
YES+NO

NOTE
- The system can stop mixing solution using **YES+NO**, cancel the error and continue to work. However, ☞ No. 268 [F] **NC_ REPL SYSYTEM IS ABNORMAL** occurs when more than a specified number of films are processed.

Condition

Condition
After the replenisher cartridge was opened, one of the replenisher solution level sensors (lower) did not detect solution. Regarding N4R, no error occurred after the replenisher cartridge was opened. However, the error occurs if the replenisher solution level sensors (lower) does not detect solution after water is mixed with replenishment solution.

Suffix number	Condition
01	N1RA
02	N2R
04	N3R
10	N1RB

NOTE
- The cartridge set is raised, and then an error occurs.

For details of operation specification, refer to ☞ 5501.

Diagnosis

Troubleshooting flow	Manual No.
☞ When No.255 After opening _ _ _, the lower level does not become "with solution". occurs	☞ 4991

Failed parts	Manual No.
Check that the replenishment solution pumps are working correctly.	-
If the replenisher cartridge is not opened, check that the cleaning nozzle is working correctly.	-
(lower) Replenisher solution level sensors	☞ 6111
F replenishment/ I/O PCB	☞ 6361

NOTE
- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 268 [F] NC_ REPL SYSYTEM IS ABNORMAL FIND AND SOLVE TROUBLE (N)

Alarm release
NO
Error message release
After water is manually or automatically mixed with replenishment solution correctly, the error is canceled automatically.

Condition

Condition
When an error in the following error list occurred, the system continued film processing by temporarily ignoring the error using **YES**+**NO**, but it exceeded the maximum amount for processing.

Suffix number	Condition
01	NC1
02	NC2

NOTE
- The number of films that the system can process while temporarily ignoring a replenishment error is as follows. (For 135F24exp)
  - NC1: 3 films
  - NC1: 14 films

Error list	
☞ No. 201 [F]	☞ No. 202 [F]
☞ No. 204 [F]	☞ No. 206 [F]
☞ No. 208 [F]	☞ No. 220 [F]
☞ No. 230 [F]	☞ No. 235 [F]
☞ No. 237 [F]	☞ No. 255 [F]
☞ No. 272 [F]	

NOTE
- When this error occurs, no film can be processed.

IMPORTANT
- Check the **Error record**, and then, deal with the target replenishment error.

No. 270 [F] PROCESSING IMPOSSIBLE OWING TO N4R OR N1RB OUTPUT ABNORM. (N)

Alarm release
NO
Error message release
After water is manually or automatically mixed with replenishment solution correctly, the error is canceled automatically.

Condition

Condition
N1RB replenisher level sensor (lower) turned off before N4R replenisher level sensor (lower) did.

NOTE
- When this error occurs, no film can be processed.

Diagnosis

Troubleshooting flow	Manual No.
☞ When No.270 Cannot process because of pump amount error for N4R or N1RB. occurs	☞ 4991

Failed parts	Manual No.
Check that there is no problems, such as leak in N1RB replenisher tank.	-
N1RB (lower) replenishment solution level sensor	☞ 6111
N4R (lower) replenishment solution level sensor	
N1RB REPLENISHER PUMP	
N4R REPLENISHER PUMP	
N4R cartridge cleaning valve	
F replenishment/ I/O PCB	☞ 6361
Power PCB 2	☞ 6321

NOTE
- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 272 [F] NC_ OPENING MOTOR OR UPPER DETECTOR IS ABNORMAL (N)

Alarm release
NO
Error message release
YES+NO

NOTE
- The system can stop mixing solution using **YES+NO**, cancel the error and continue to work. However, ☞ No. 268 [F] **NC_ REPL SYSYTEM IS ABNORMAL** occurs when more than a specified number of films are processed.
- When the power supply turns on after being reset, the attention message, **CONTINUE MIXING SOLUTION ?** is displayed.

Condition

Condition
When the replenisher cartridge started to open, the system operated each replenisher cartridge open/close motor. However, each replenisher cartridge position sensor (upper) did not turn LIGHT.

Suffix number	Condition
01	NC1
02	NC2

For details of operation specification, refer to ☞ 5501.

Check Point

1	Confirm that there is nothing stuck in the replenisher cartridge section.

Diagnosis

Failed parts	Manual No.
NC1 replenisher cartridge position sensor (upper)	☞ 6111
NC2 replenisher cartridge position sensor (upper)	
NC1 replenisher cartridge open/close motor	
NC2 replenisher cartridge open/close motor	
F replenishment/ I/O PCB	☞ 6361
Power PCB 2	☞ 6321

NOTE
- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 274 [F] N1R_ REPL PUMP, WASH VALVE ,OR STIR VALVE IS ABNORMAL (N)

No. 275 [F] ____ REPL PUMP OR WASH VALVE IS ABNORMAL (N)

Alarm release
NO
Error message release
The errors are canceled when the power supply is reset, and they are automatically canceled when the interlock switch changes from OFF→ON.

NOTE
- When the interlock switch changes form OFF→ON, **INITIALIZE REPLENISHMENT DATA?** is displayed. Select **YES** to internalize output amount of the pump and correction cleaning amount. Reset the power supply after the operation is finished.

Condition

Condition
The replenisher level sensor (upper) does not detect anything even after specified numbers of films are processed. Contrary, the replenisher level sensor (upper) turns off even when specified numbers of films has not been processed.

Suffix number	Condition (No. 274)
01	N1RA
02	N1RB

Suffix number	Condition (No. 275)
01	N2R
02	N3R
04	N4R

NOTE
- Each errors occur when the occurrence condition is repeated twice in a row.

Diagnosis

Troubleshooting flow	Manual No.
☞ When No. 274 Error of N1R_replenisher pump, agitation value or cleaning value No.275 Error of _ _ _replenisher pump or cleaning valve No.279_ __replenisher pump errorNo.290_ _ _replenisher pump system error occurs	☞ 4991

When replenishment solution decreases quickly	Manual No.
Check that there is no problems, such as leak in each replenisher tank.	-

When replenishment solution decreases quickly	Manual No.
Replenisher pumps	☞6111
Cartridge cleaning valves	
Agitation valves	
Replenisher cartridge cleaning pump	
F replenishment/ I/O PCB	☞6361
Power PCB 2	☞6321

When replenishment solution is slow to decrease	Manual No.
Check that the replenishment solution pumps are working correctly.	-
Replenisher pumps	☞6111
Cartridge cleaning valves	
Agitation valves	
Replenisher cartridge cleaning pump	
F replenishment/ I/O PCB	☞6361
Power PCB 2	☞6321

NOTE

- Electrical circuit diagram(s) (references)

Wiring diagram
☞8900

No. 279 [F] ____ REPL PUMP IS ABNORMAL (N)

Alarm release

NO

Error message release

The errors are canceled when the power supply is reset, and they are automatically canceled when the interlock switch changes from OFF→ON.

NOTE

- If **YES+NO** is selected, replenishment solution is not refilled.
- When the interlock switch changes form OFF→ON, **INITIALIZE REPLENISHMENT DATA?** is displayed. Select **YES** to internalize output amount of the pump and correction cleaning amount. Reset the power supply after the operation is finished.

Condition

Condition
The replenisher solution level sensor (lower) does not detect anything even after specified numbers of films are processed. Contrary, the replenisher solution level sensor (lower) turns off even when specified numbers of films has not been processed.

Suffix number	Condition
01	N1RA
02	N2R
04	N3R
08	N4R
10	N1RB

Diagnosis

Troubleshooting flow	Manual No.
☞When No. 274 Error of N1R_replenisher pump, agitation value or cleaning value No.275 Error of _ _ _replenisher pump or cleaning valve No.279_ __replenisher pump errorNo.290_ _ _replenisher pump system error occurs	☞4991

When replenishment solution decreases quickly	Manual No.
Check that there is no problems, such as leak in each replenisher tank.	-
Replenisher pumps	☞6111
Power PCB 2	☞6321

When replenishment solution is slow to decrease	Manual No.
Check that the replenishment solution pumps are working correctly.	-
Replenisher pumps	☞6111
Power PCB 2	☞6321

NOTE
- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 290 [F] ____ REPLENISHING PUMP (N)

Alarm release
NO

Error message release
The errors are canceled when the power supply is reset, and they are automatically canceled when the interlock switch changes from OFF→ON.

NOTE
- When the interlock switch changes form OFF→ON, **INITIALIZE REPLENISHMENT DATA?** is displayed. Select **YES** to internalize output amount of the pump and correction cleaning amount. Reset the power supply after the operation is finished.

Condition

Condition
The processing amount of the replenishment solution above the replenishment solution level sensor (upper) has exceeded the manageable range.

Suffix number	Condition
01	N1RA
02	N2R
04	N3R
08	N4R
10	N1RB

Diagnosis

Troubleshooting flow	Manual No.
☞ When No. 274 Error of N1R_replenisher pump, agitation value or cleaning value No.275 Error of _ _ _replenisher pump or cleaning valve No.279_ __replenisher pump errorNo.290_ _ _replenisher pump system error occurs	☞ 4991

Failed parts	Manual No.
Check that the replenishment solution pumps are working correctly.	-
Replenisher pumps	☞ 6111
Power PCB 2	☞ 6321

NOTE
- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 300 [F] ___ SOLN LEVEL OF PROCESSING TANK WENT LOW. (N)

Alarm release
NO

Error message release
The error is automatically canceled when the processing solution level sensor turns on.

Condition

Condition
Each processing solution float switch does not turn on by refilling certain amount water after each processing solution float switch turned off.

NOTE
- This error does not occur until the refilling water operation of start up checks completes.

Suffix number	Condition
01	N1 tank
02	N2 tank
04	N3 tank 1
08	N3 tank 2
10	N4 tank 1
20	N4 tank 2
40	N4 tank 3

Check Point

1	Check if the processing solution level is normal.
2	Check the processing solution level float switch status via input check.
3	Check if the replenisher solution strainer is clogged.
4	Check the pump output amount of the replenisher pump.

Diagnosis

Troubleshooting flow	Manual No.
☞ When No.300 _ _ _ SOLN LEVEL OF PROCESSING TANK WENT LOW. occurred	☞ 4991

Failed parts (defection failure)	Manual No.
Processing solution level float switch	☞ 6111
• Check that the processing solution level is normal and then check the conduction between the Pin 1 and Pin 3 of the connector of the processing solution level float switch. When there is no conduction even though the processing solution level float rises, the processing solution level float switch is defected.	
Power PCB 2	☞ 6321
Main control PCB	☞ 6301

Failed parts (failure of replenisher and water refilling)	Manual No.
Each replenisher pump	☞ 6111
Replenishment cartridge cleaning pump	
Replenishment cartridge cleaning pump	
N3W cascade replenisher pump	
F replenishment/ I/O PCB	☞ 6361
Power PCB 2	☞ 6321
Main control PCB	☞ 6301

NOTE
- Electrical circuit diagram(s) (references)

Wiring diagram
☞ 8900

No. 302 [F] WATER REFILLING SYSTEM NOT FUNCTIONING. (N)

Alarm release
NO

Error message release
The error is automatically canceled when the **Auto adding water** turns on.

Condition

Condition
When the power supply is on, auto adding water is off.

NOTE
- The setting of auto water refilling is off when installing the system or after initializing the data.

Check Point

1	Turn on **AUTO WATER REFILLING** in **OPERATION MODE SET**.

No. 306 [F] DATA FOR AUTO WATER REFILLING ABNORMAL (N)

Alarm release
NO

Error message release
YES+NO

Condition

Condition
Environmental temperature is 5°C or lower, or 42°C or higher.
Humidity is 10% or lower, or 90% or higher.

Suffix number	Condition
01	Environmental temperature is abnormal.
02	Humidity is abnormal.

NOTE
- Check environmental temperature and humidity once an hour.

Check Point

1	Calibrate the thermosensor.

Diagnosis

Failed parts	Manual No.
Temperature and humidity sensor	☞6201
Main control PCB	☞6301

NOTE
- Electrical circuit diagram(s) (references)

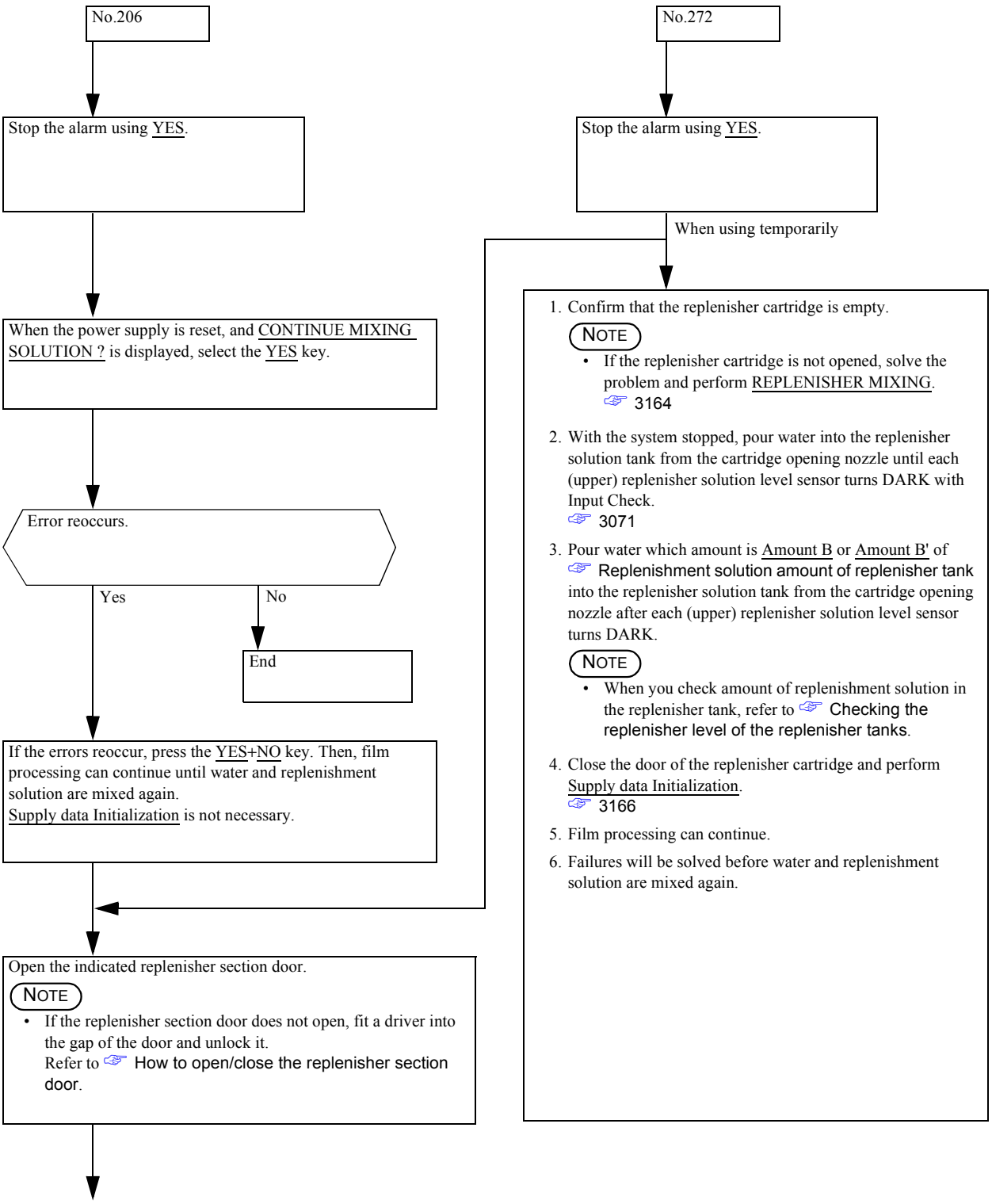
Wiring diagram
☞8900

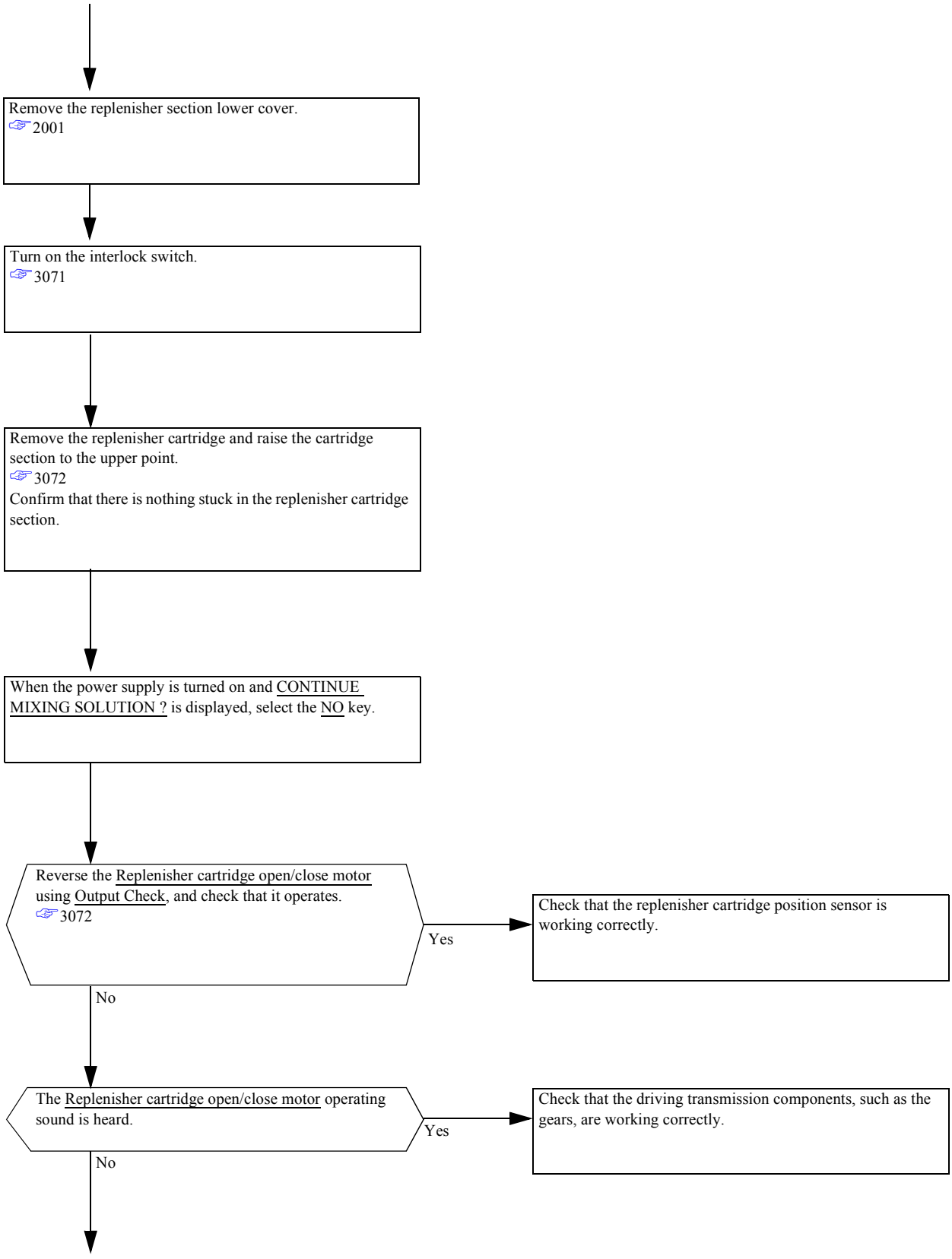
When No.206 NC_CARTRIDGE SETTING UNIT DOES NOT GO UP. and No.272 OPENING MOTOR OR UPPER DETECTOR IS ABNORMAL occur

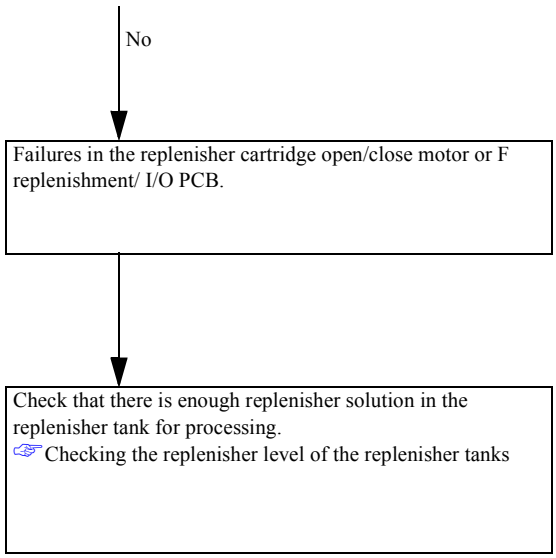
● Troubleshooting flow

IMPORTANT

- If processing solution remains in the replenisher cartridge or leaks, do not perform **Temporary use**, but empty the replenisher tank, solve the error and perform **REPLENISHER MIXING**.
  ☞3164


No.206
Stop the alarm using YES.
When the power supply is reset, and CONTINUE MIXING SOLUTION ? is displayed, select the YES key.
Error reoccurs.
Yes
No
End
If the errors reoccur, press the YES+NO key. Then, film processing can continue until water and replenishment solution are mixed again.
Supply data Initialization is not necessary.
Open the indicated replenisher section door.
NOTE
• If the replenisher section door does not open, fit a driver into the gap of the door and unlock it.
Refer to ☞ How to open/close the replenisher section door.
No.272
Stop the alarm using YES.
When using temporarily
1. Confirm that the replenisher cartridge is empty.
NOTE
• If the replenisher cartridge is not opened, solve the problem and perform REPLENISHER MIXING.
☞ 3164
2. With the system stopped, pour water into the replenisher solution tank from the cartridge opening nozzle until each (upper) replenisher solution level sensor turns DARK with Input Check.
☞ 3071
3. Pour water which amount is Amount B or Amount B' of ☞ Replenishment solution amount of replenisher tank into the replenisher solution tank from the cartridge opening nozzle after each (upper) replenisher solution level sensor turns DARK.
NOTE
• When you check amount of replenishment solution in the replenisher tank, refer to ☞ Checking the replenisher level of the replenisher tanks.
4. Close the door of the replenisher cartridge and perform Supply data Initialization.
☞ 3166
5. Film processing can continue.
6. Failures will be solved before water and replenishment solution are mixed again.


Remove the replenisher section lower cover.
☞2001
Turn on the interlock switch.
☞3071
Remove the replenisher cartridge and raise the cartridge section to the upper point.
☞3072
Confirm that there is nothing stuck in the replenisher cartridge section.
When the power supply is turned on and CONTINUE MIXING SOLUTION ? is displayed, select the NO key.
Reverse the Replenisher cartridge open/close motor using Output Check, and check that it operates.
☞3072
Yes
Check that the replenisher cartridge position sensor is working correctly.
No
The Replenisher cartridge open/close motor operating sound is heard.
Yes
Check that the driving transmission components, such as the gears, are working correctly.
No

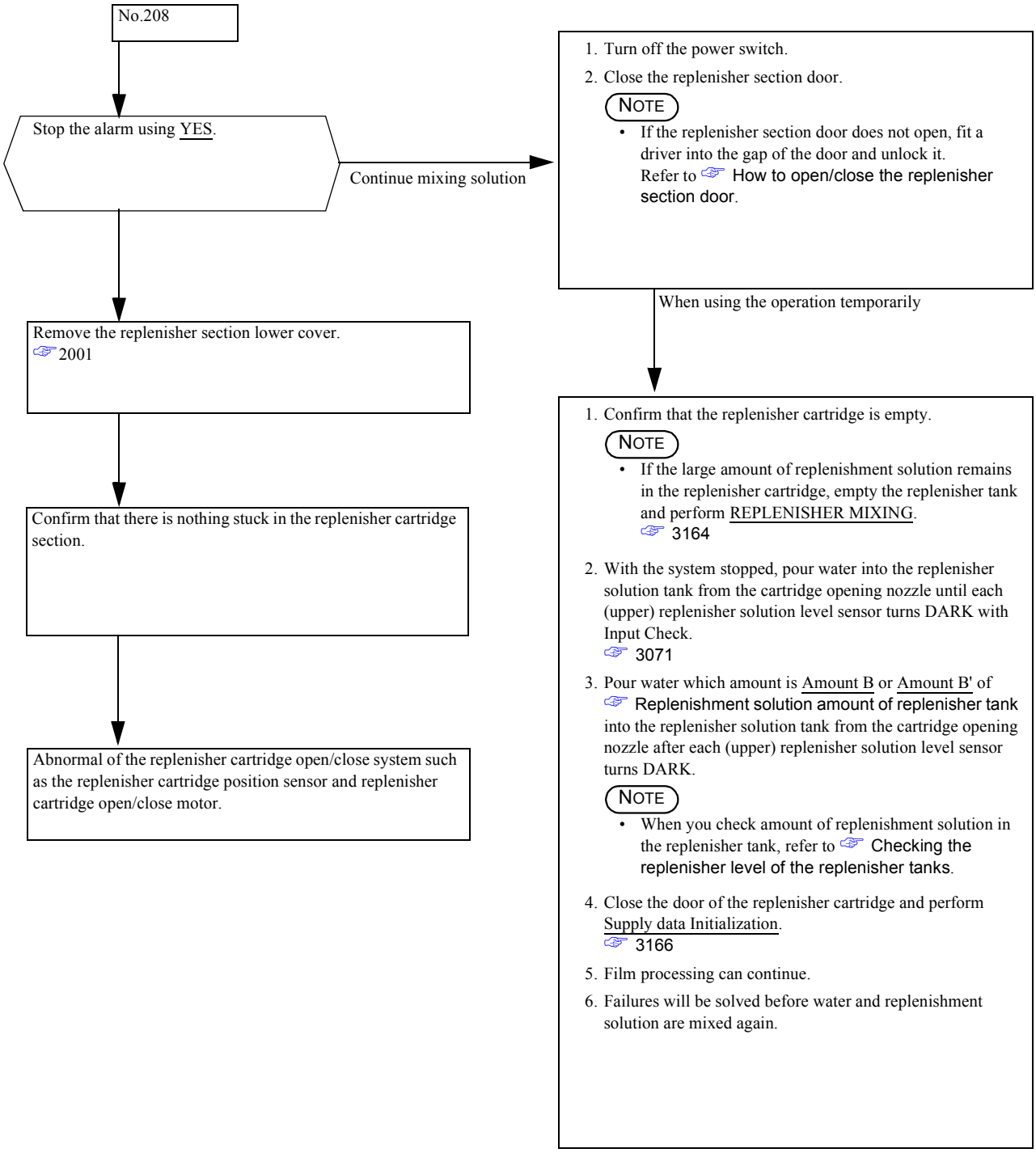

No
Failures in the replenisher cartridge open/close motor or F replenishment/ I/O PCB.
Check that there is enough replenisher solution in the replenisher tank for processing.
☞Checking the replenisher level of the replenisher tanks

When No.208 NC_CARTRIDGE SETTING UNIT DOES NOT GO DOWN occurs

● Troubleshooting flow

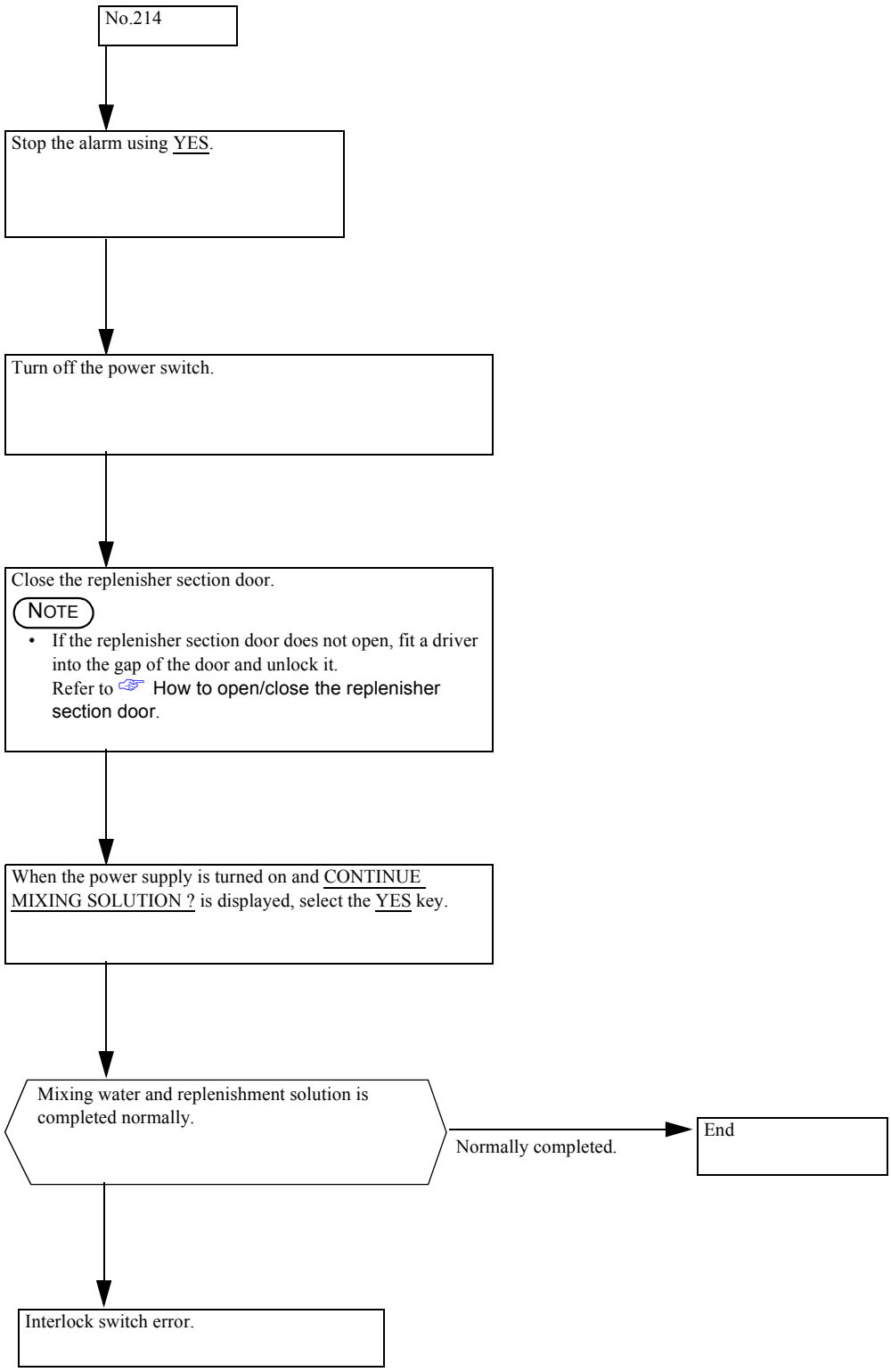
IMPORTANT

- If processing solution remains in the replenisher cartridge or leaks, do not perform **Temporary use**, but empty the replenisher tank, solve the error and perform **REPLENISHER MIXING**.
  ☞3164


No.208
Stop the alarm using YES.
Continue mixing solution
1. Turn off the power switch.
2. Close the replenisher section door.
NOTE
• If the replenisher section door does not open, fit a driver into the gap of the door and unlock it. Refer to ☞ How to open/close the replenisher section door.
When using the operation temporarily
Remove the replenisher section lower cover.
☞2001
Confirm that there is nothing stuck in the replenisher cartridge section.
Abnormal of the replenisher cartridge open/close system such as the replenisher cartridge position sensor and replenisher cartridge open/close motor.
1. Confirm that the replenisher cartridge is empty.
NOTE
• If the large amount of replenishment solution remains in the replenisher cartridge, empty the replenisher tank and perform REPLENISHER MIXING.
☞ 3164
2. With the system stopped, pour water into the replenisher solution tank from the cartridge opening nozzle until each (upper) replenisher solution level sensor turns DARK with Input Check.
☞ 3071
3. Pour water which amount is Amount B or Amount B' of ☞ Replenishment solution amount of replenisher tank into the replenisher solution tank from the cartridge opening nozzle after each (upper) replenisher solution level sensor turns DARK.
NOTE
• When you check amount of replenishment solution in the replenisher tank, refer to ☞ Checking the replenisher level of the replenisher tanks.
4. Close the door of the replenisher cartridge and perform Supply data Initialization.
☞ 3166
5. Film processing can continue.
6. Failures will be solved before water and replenishment solution are mixed again.

When No.214 NC_CARTRIDGE SETTING UNIT DOOR WAS OPEN WHILE MIXING. occurs

● Troubleshooting flow

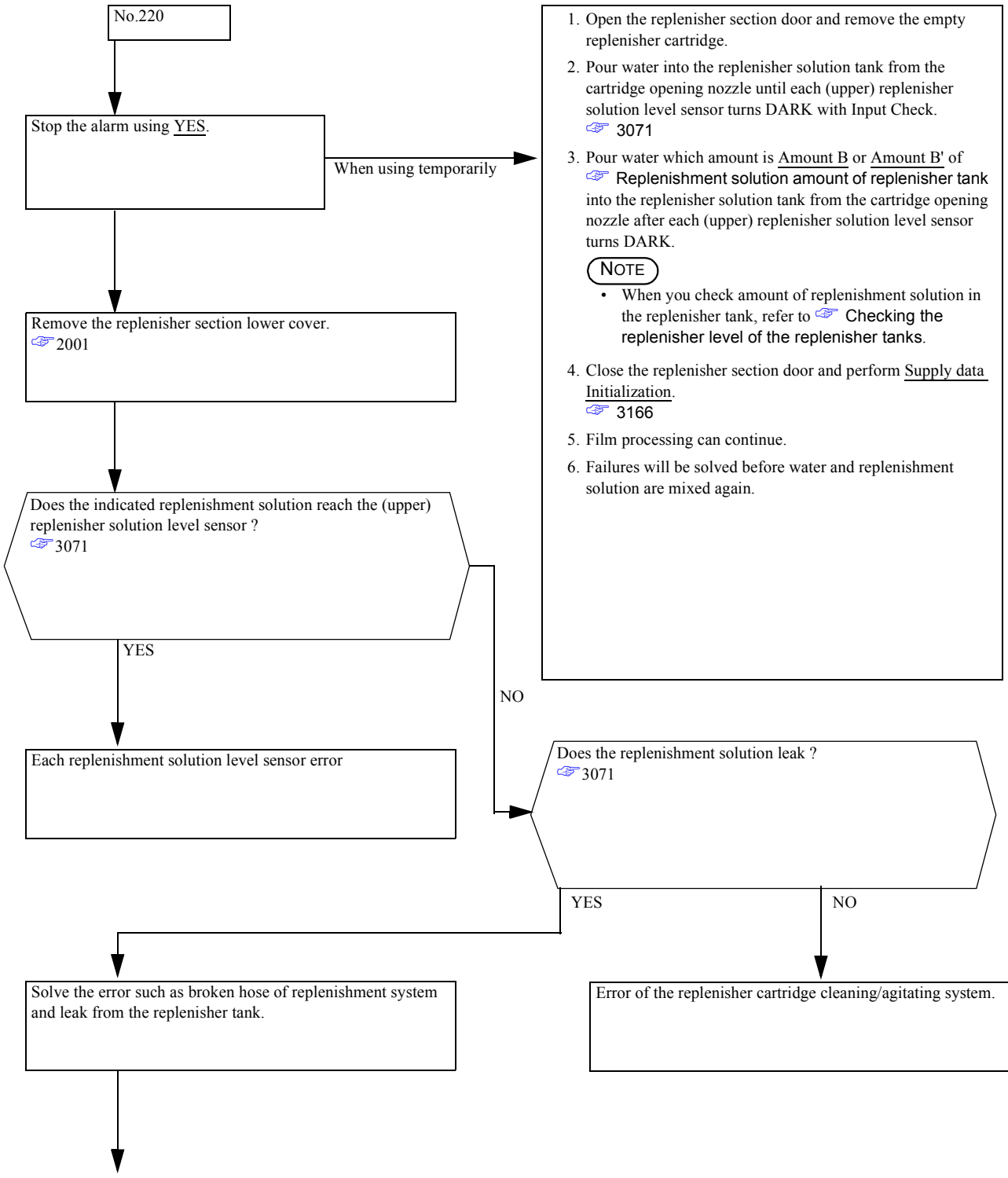

No.214
Stop the alarm using YES.
Turn off the power switch.
Close the replenisher section door.
NOTE
• If the replenisher section door does not open, fit a driver into the gap of the door and unlock it.
Refer to ☞ How to open/close the replenisher section door.
When the power supply is turned on and CONTINUE MIXING SOLUTION ? is displayed, select the YES key.
Mixing water and replenishment solution is completed normally.
Normally completed.
End
Interlock switch error.

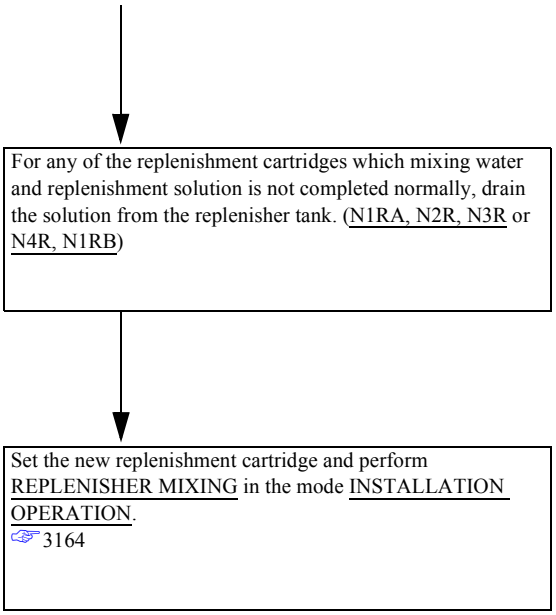
When No.220 No replenishment solution is produced. occurs

● Troubleshooting flow

IMPORTANT

- If the replenishment solution in the replenisher tank does not reach the replenisher solution level sensor, temporary use is available.
  Refer to ☞Checking the replenisher level of the replenisher tanks.


No.220
Stop the alarm using YES.
When using temporarily
1. Open the replenisher section door and remove the empty replenisher cartridge.
2. Pour water into the replenisher solution tank from the cartridge opening nozzle until each (upper) replenisher solution level sensor turns DARK with Input Check.
☞ 3071
3. Pour water which amount is Amount B or Amount B' of ☞ Replenishment solution amount of replenisher tank into the replenisher solution tank from the cartridge opening nozzle after each (upper) replenisher solution level sensor turns DARK.
NOTE
• When you check amount of replenishment solution in the replenisher tank, refer to ☞ Checking the replenisher level of the replenisher tanks.
4. Close the replenisher section door and perform Supply data Initialization.
☞ 3166
5. Film processing can continue.
6. Failures will be solved before water and replenishment solution are mixed again.
Remove the replenisher section lower cover.
☞2001
Does the indicated replenishment solution reach the (upper) replenisher solution level sensor ?
☞3071
YES
NO
Each replenishment solution level sensor error
Does the replenishment solution leak ?
☞3071
YES
NO
Solve the error such as broken hose of replenishment system and leak from the replenisher tank.
Error of the replenisher cartridge cleaning/agitating system.

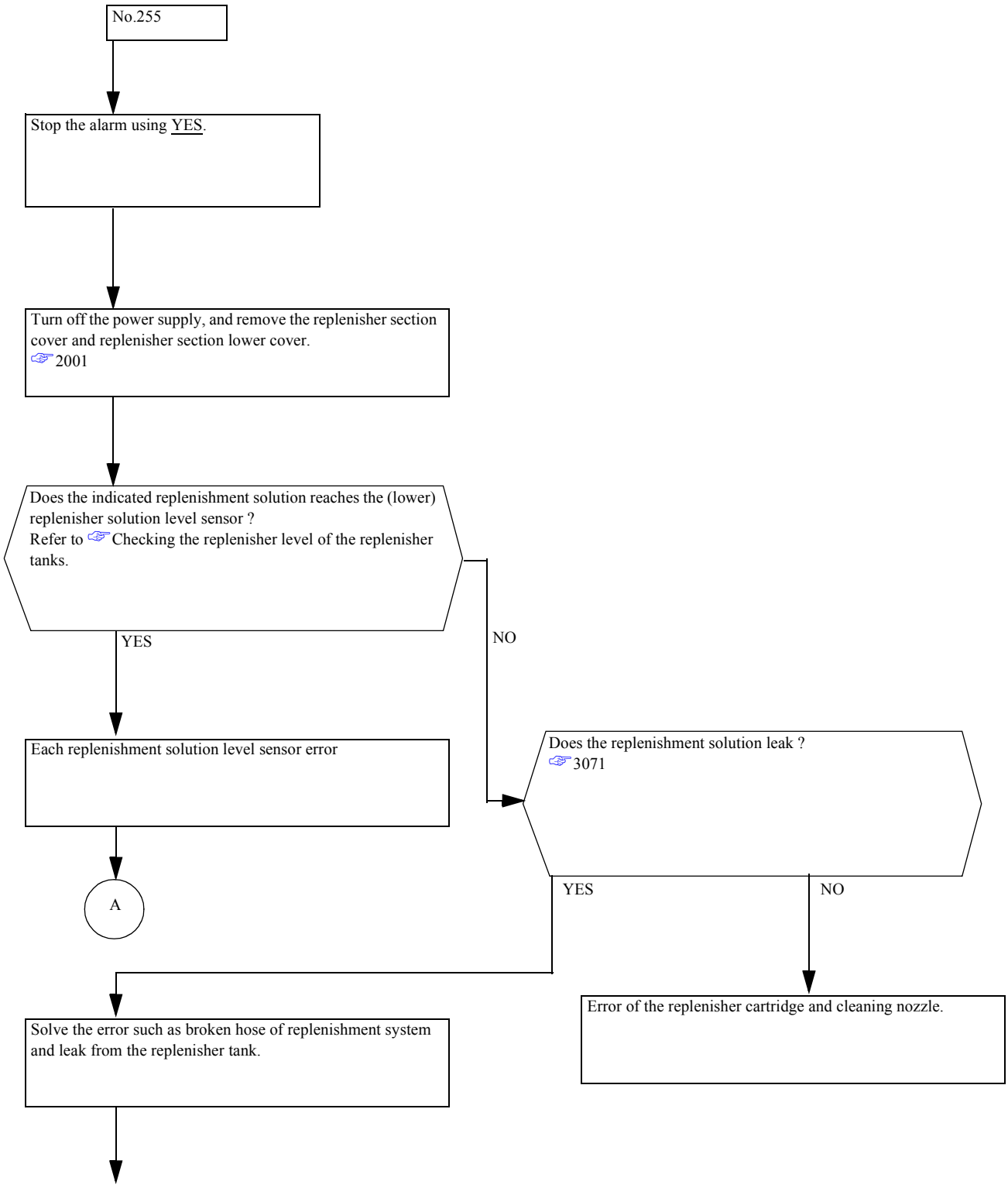

For any of the replenishment cartridges which mixing water and replenishment solution is not completed normally, drain the solution from the replenisher tank. (N1RA, N2R, N3R or N4R, N1RB)
Set the new replenishment cartridge and perform REPLENISHER MIXING in the mode INSTALLATION OPERATION.
☞3164

When No.255 After opening _ _ _, the lower level does not become "with solution". occurs

● Troubleshooting flow

IMPORTANT

- If processing solution remains in the replenisher cartridge or leaks, do not perform **Temporary use**, but empty the replenisher tank, solve the error and perform **REPLENISHER MIXING**.
  ☞3164


No.255
Stop the alarm using YES.
Turn off the power supply, and remove the replenisher section cover and replenisher section lower cover.
☞2001
Does the indicated replenishment solution reaches the (lower) replenisher solution level sensor ?
Refer to ☞Checking the replenisher level of the replenisher tanks.
YES
NO
Each replenishment solution level sensor error
A
Does the replenishment solution leak ?
☞3071
YES
NO
Solve the error such as broken hose of replenishment system and leak from the replenisher tank.
Error of the replenisher cartridge and cleaning nozzle.

For any of the replenishment cartridges which mixing water and replenishment solution is not completed normally, drain the solution from the replenisher tank. (N1RA, N2R, N3R or N4R, N1RB)

Set the new replenishment cartridge and perform REPLENISHER MIXING in the mode INSTALLATION OPERATION.
☞3164

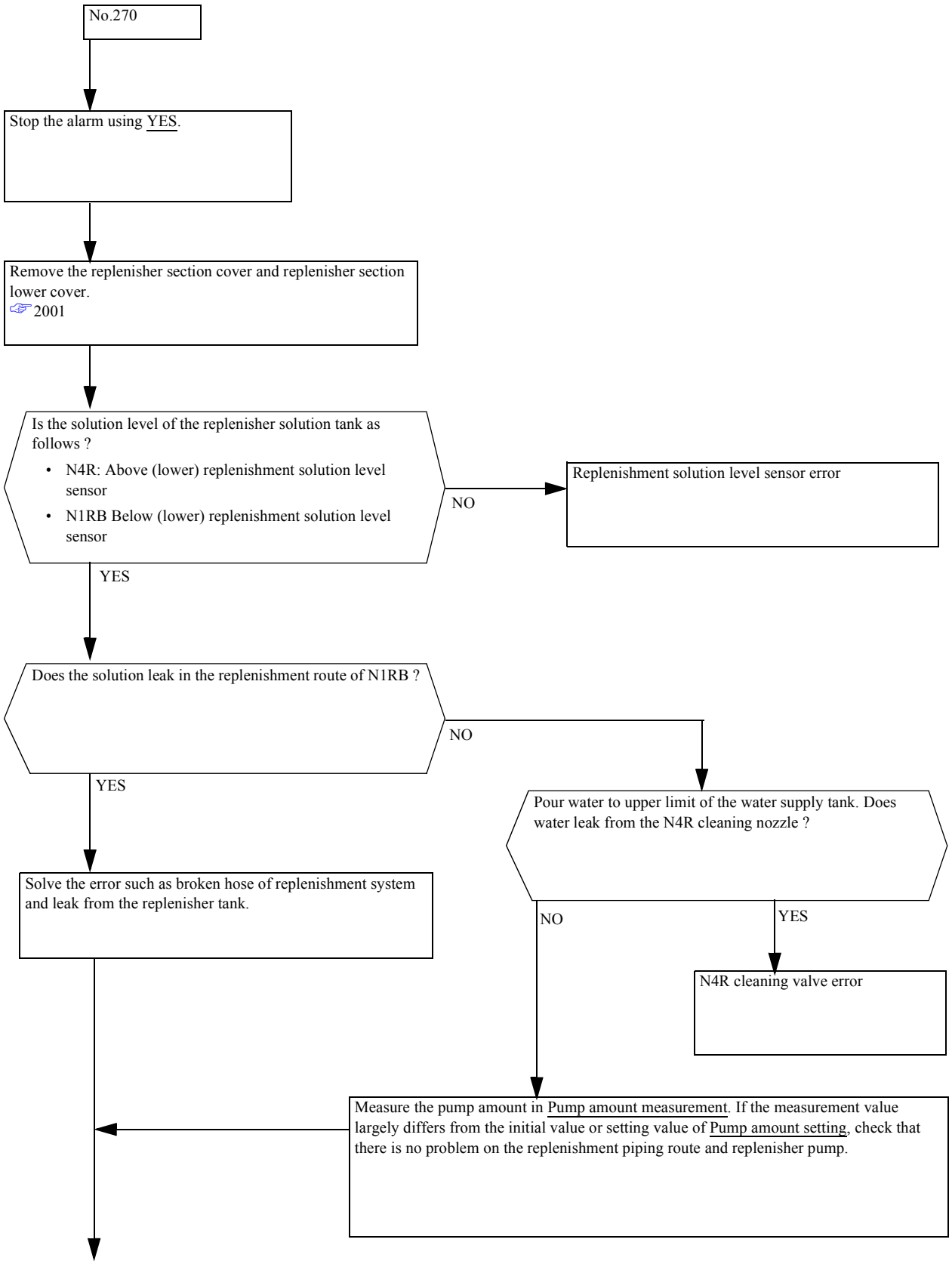
A

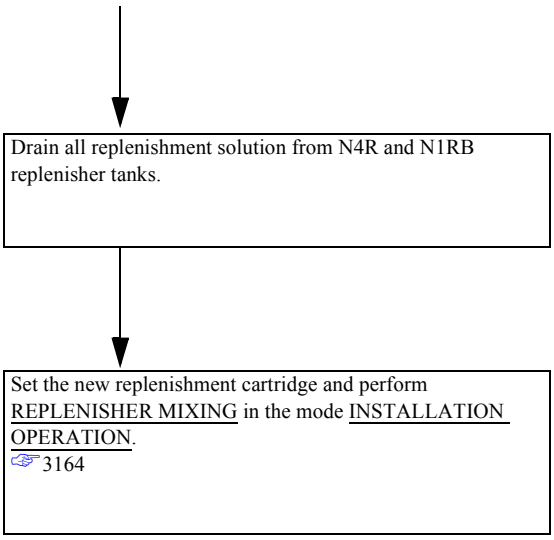
1. Pour water into the replenisher solution tank from the cartridge opening nozzle until each (upper) replenisher solution level sensor turns DARK with Input Check.
   ☞ 3071
2. Pour water which amount is Amount B or Amount B' of ☞ Replenishment solution amount of replenisher tank into the replenisher solution tank from the cartridge opening nozzle after each (upper) replenisher solution level sensor turns DARK.

   NOTE
   - When you check amount of replenishment solution in the replenisher tank, refer to ☞ Checking the replenisher level of the replenisher tanks.
3. Close the replenisher section door and perform Supply data Initialization.
   ☞ 3166
4. Film processing can continue.
5. Failures will be solved before water and replenishment solution are mixed again.

When No.270 Cannot process because of pump amount error for N4R or N1RB. occurs

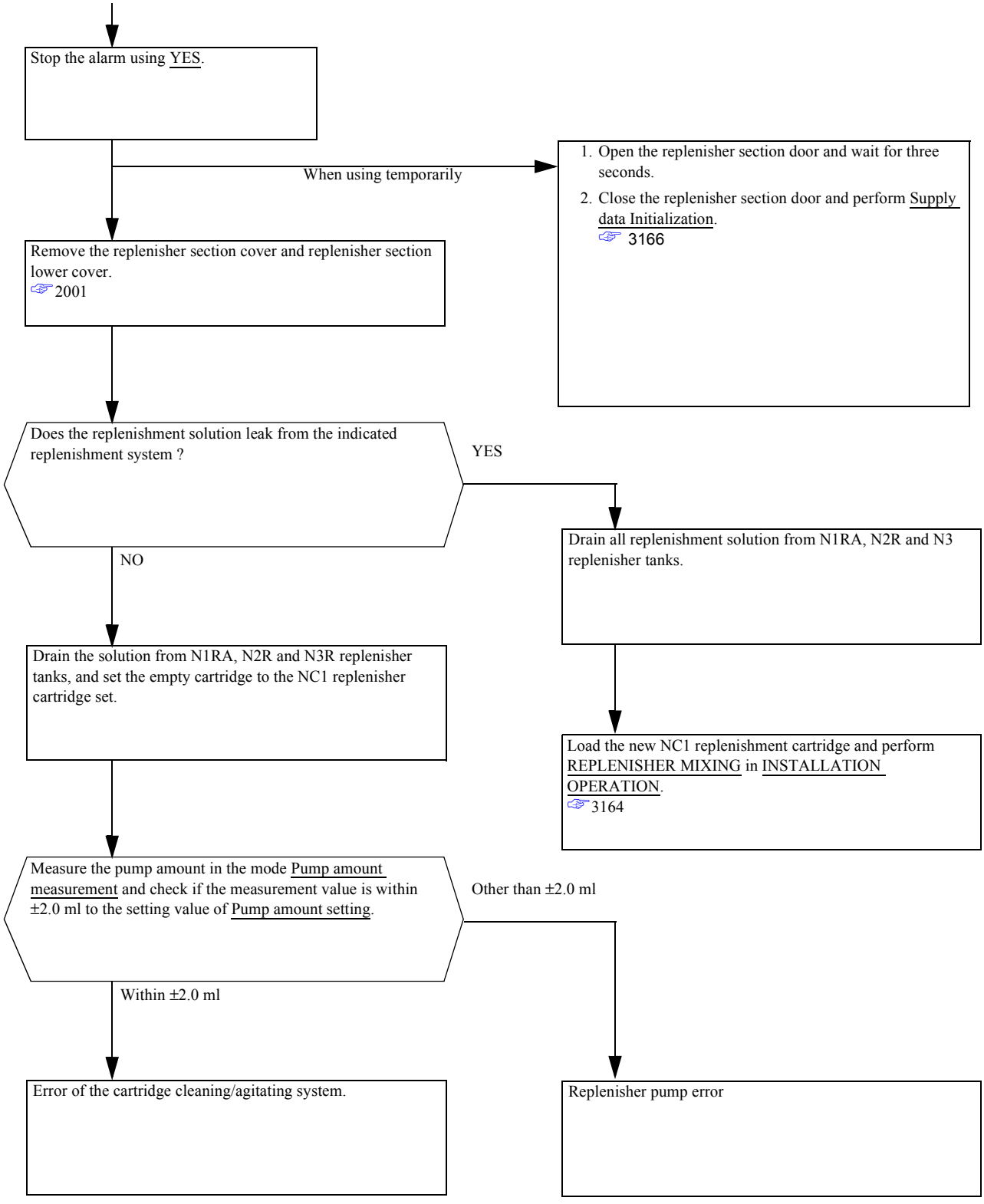
● Troubleshooting flow


No.270
Stop the alarm using YES.
Remove the replenisher section cover and replenisher section lower cover.
☞2001
Is the solution level of the replenisher solution tank as follows ?
• N4R: Above (lower) replenishment solution level sensor
• N1RB Below (lower) replenishment solution level sensor
NO
Replenishment solution level sensor error
YES
Does the solution leak in the replenishment route of N1RB ?
NO
YES
Pour water to upper limit of the water supply tank. Does water leak from the N4R cleaning nozzle ?
NO
YES
Solve the error such as broken hose of replenishment system and leak from the replenisher tank.
N4R cleaning valve error
Measure the pump amount in Pump amount measurement. If the measurement value largely differs from the initial value or setting value of Pump amount setting, check that there is no problem on the replenishment piping route and replenisher pump.


Drain all replenishment solution from N4R and N1RB replenisher tanks.
Set the new replenishment cartridge and perform REPLENISHER MIXING in the mode INSTALLATION OPERATION.
☞3164

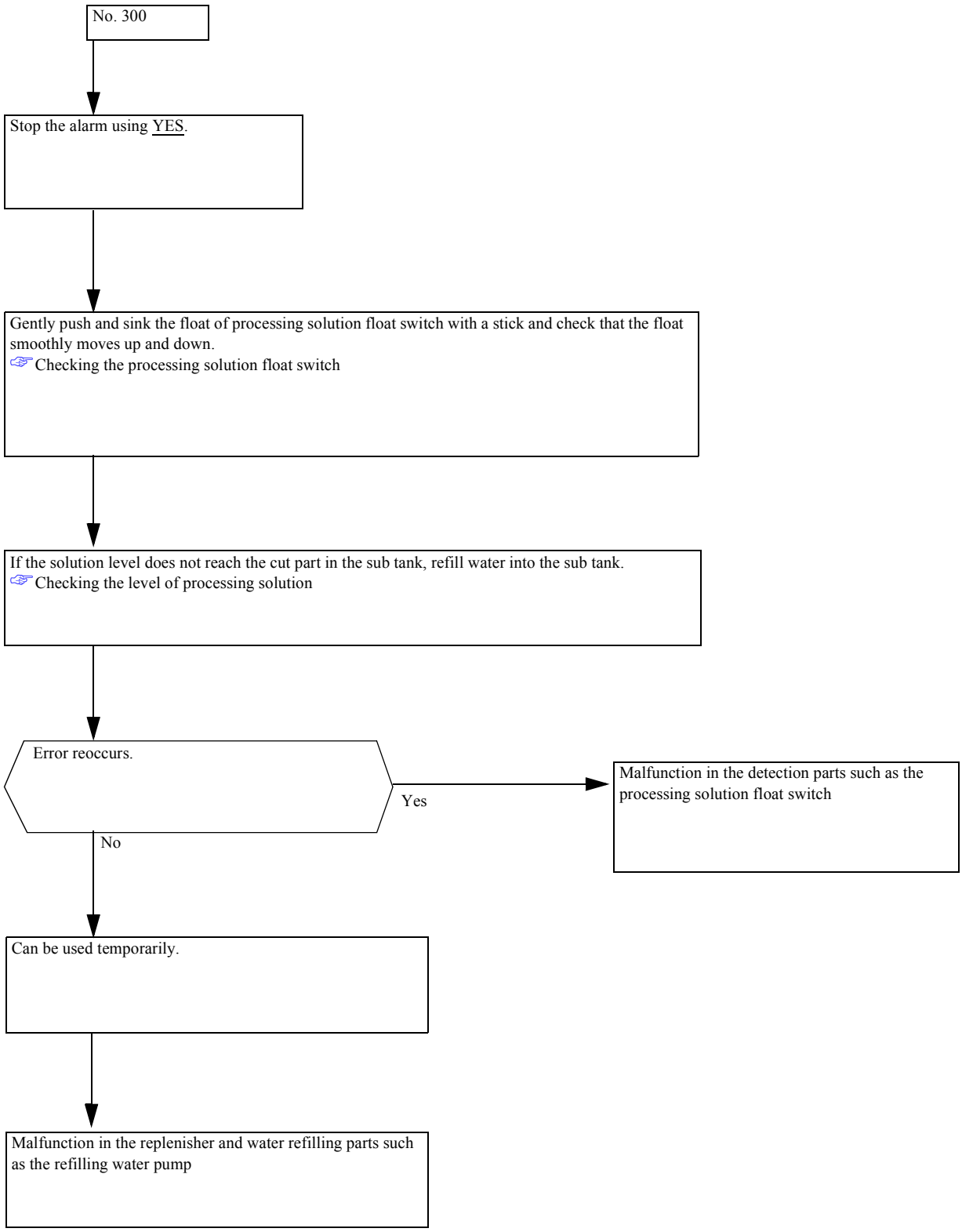
When No. 274 Error of N1R_replenisher pump, agitation value or cleaning value No.275 Error of _ _ _replenisher pump or cleaning valve No.279_ __replenisher pump errorNo.290_ _ _replenisher pump system error occurs

● Troubleshooting flow


Stop the alarm using YES.
When using temporarily
1. Open the replenisher section door and wait for three seconds.
2. Close the replenisher section door and perform Supply data Initialization.
☞ 3166
Remove the replenisher section cover and replenisher section lower cover.
☞2001
Does the replenishment solution leak from the indicated replenishment system ?
YES
NO
Drain all replenishment solution from N1RA, N2R and N3 replenisher tanks.
Drain the solution from N1RA, N2R and N3R replenisher tanks, and set the empty cartridge to the NC1 replenisher cartridge set.
Load the new NC1 replenishment cartridge and perform REPLENISHER MIXING in INSTALLATION OPERATION.
☞3164
Measure the pump amount in the mode Pump amount measurement and check if the measurement value is within ±2.0 ml to the setting value of Pump amount setting.
Other than ±2.0 ml
Within ±2.0 ml
Error of the cartridge cleaning/agitating system.
Replenisher pump error

When No.300 _ _ _ SOLN LEVEL OF PROCESSING TANK WENT LOW. occurred

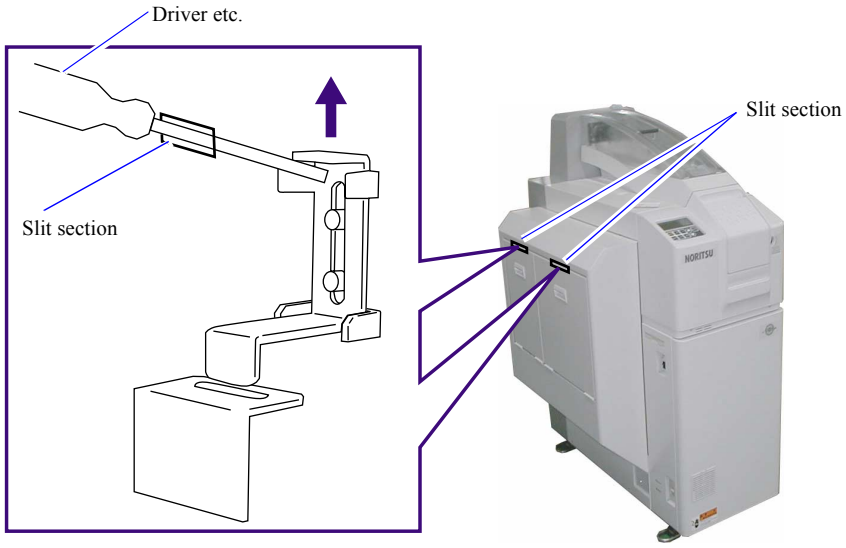
● Troubleshooting flow


No. 300
Stop the alarm using YES.
Gently push and sink the float of processing solution float switch with a stick and check that the float smoothly moves up and down.
☞Checking the processing solution float switch
If the solution level does not reach the cut part in the sub tank, refill water into the sub tank.
☞Checking the level of processing solution
Error reoccurs.
Yes
Malfunction in the detection parts such as the processing solution float switch
No
Can be used temporarily.
Malfunction in the replenisher and water refilling parts such as the refilling water pump

Support documentation of trouble shooting

● How to open/close the replenisher section door

If the replenisher cartridge set is positioned lower and the replenisher section door is locked, release the lock with inserting a tool such as a driver into a slit to open/close the replenisher section door.

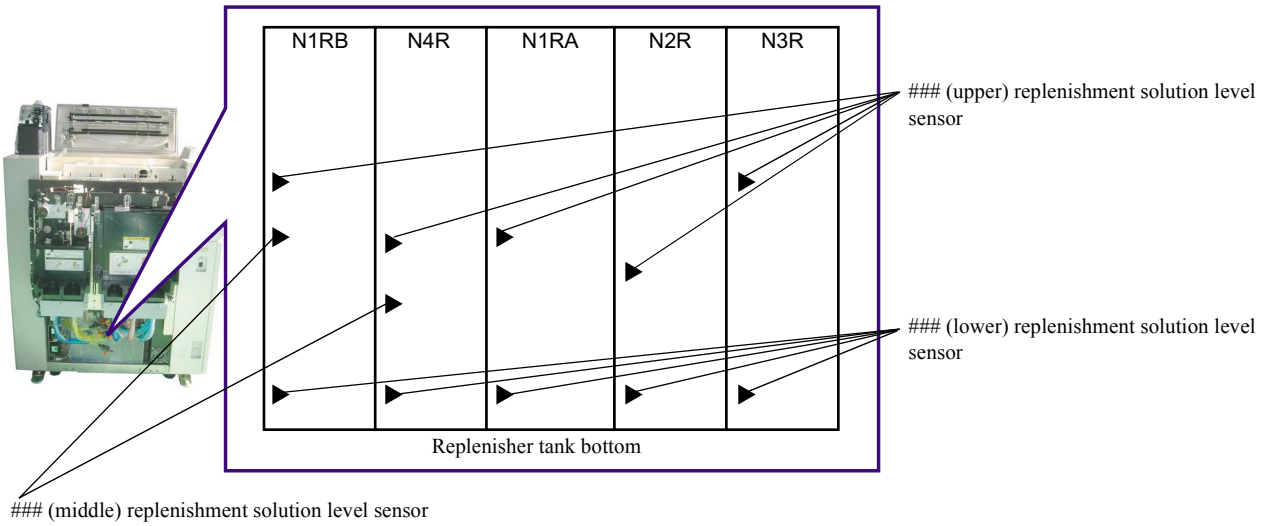


G085911

● Checking the replenisher level of the replenisher tanks

Check that the replenishment solution level is within the range in the table below.

	Dimension from the tank bottom to the solution level				
	N1RB	N4R	N1RA	N2R	N3R
Solution level after mixing water and replenishment solution by the auto open/close.	Approx. 229 mm	Approx. 174 mm	Approx. 180 mm	Approx. 127 mm	Approx. 180 mm
Solution level after mixing water and replenishment solution at installation or under the tank empty status.	Approx. 185 mm	Approx. 153 mm	Approx. 149 mm	Approx. 97 mm	Approx. 144 mm
With the replenishment solution only	Approx. 72 mm	Approx. 61 mm	Approx. 118 mm	Approx. 113 mm	Approx. 163 mm
With the replenishment solution only at installation or under the tank empty status	Approx. 27 mm	Approx. 41 mm	Approx. 83 mm	Approx. 83 mm	Approx. 129 mm



G085910

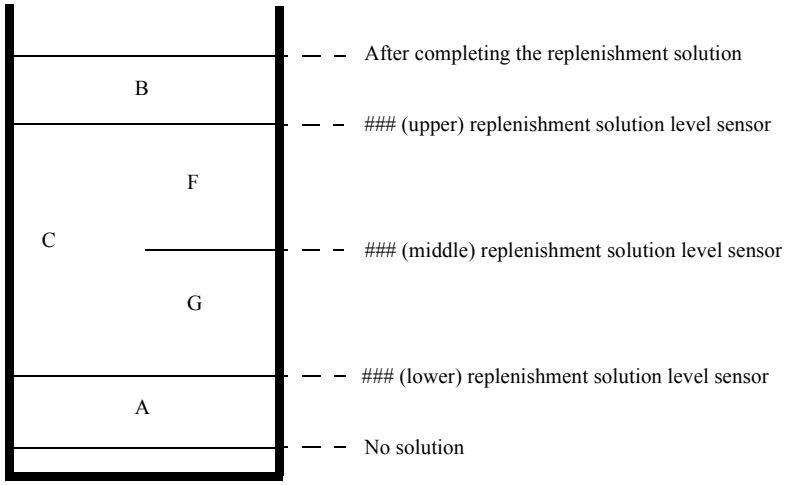
● Replenishment solution amount of replenisher tank

The table below shows the solution amount to each replenishment solution level sensor.

	Position in sketch	Solution amount (ml)				
		N1RA	N2R	N3R	N4R	N1RB
Full replenishment solution amount	–	2400	1000	1500	1600	3000
Dilution water amount	–	1074	150	174	1200	2600
Replenishment concentrate solution amount	–	1326	850	1326	400	400
Above ### (upper) replenishment solution level sensor	Amount B	804	110	90	530	1116
	Amount B' *1	281	0	0	358	467
From ### (upper) replenishment solution level sensor to ### (lower) replenishment solution level sensor	Amount C	1380	800	1275	750	1884
From ### (upper) replenishment solution level sensor to ### (middle) replenishment solution level sensor	Amount F	–	–	–	270	384
From ### (middle) replenishment solution level sensor to ### (lower) replenishment solution level sensor	Amount G	–	–	–	480	1500
Below ### (lower) replenishment solution level sensor	Amount A	216	90	135	320	0

*1. **Amount B'** is the level above ### (upper) replenishment solution level sensor if carrying out mixing to empty tanks.

Sketch of the replenisher tank

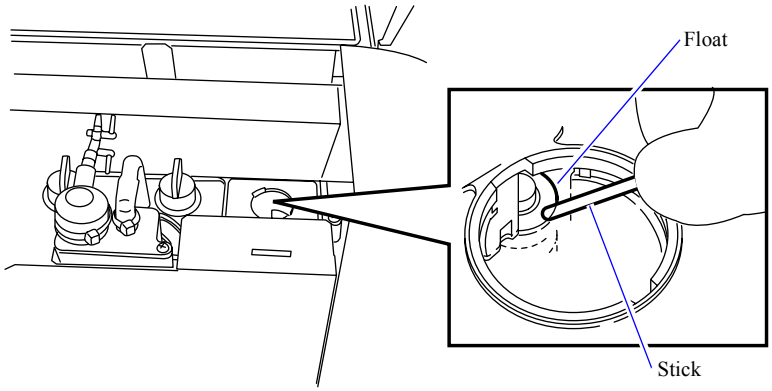


NOTE

- When performing replenisher mixing operation for the second time or later, ### (lower) replenishment solution level sensor turns on with the processing solution only (without any water) in the replenishment tank.
  Regarding N4R, for the first time or when opening with the tank empty, the replenisher solution level sensors (lower) may not turn on with the processing solution only. The error does not occur in this case.
- For the second replenisher mixing operation or later, ### (upper) replenisher solution level sensor turns on with the replenishment solution completed.
  However, ### (upper) replenisher solution level sensor of N2R and N3R may not turn on with the replenishment solution completed when carrying out the mixing operation to empty tank such as the first mixing operation. The error does not occur in this case.
  When performing the replenisher mixing operation to empty tank, the replenishment solution for pouring to hose is necessary. Therefore,

● Checking the processing solution float switch

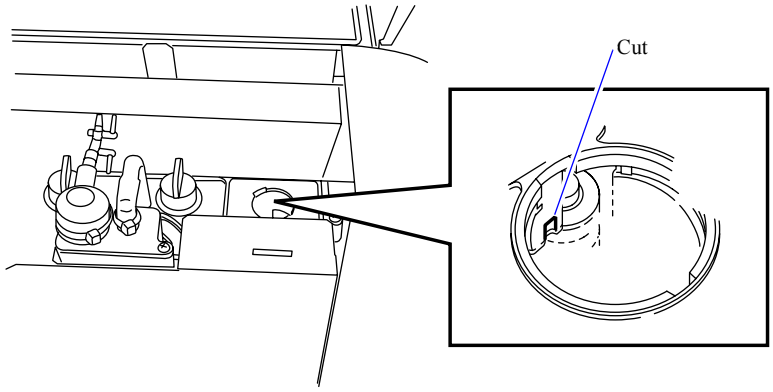
Pull out the filter pipe of the processing solution tank, gently push and sink the float of processing solution float switch with a stick and check that the float smoothly moves up and down. If it does not move smoothly, check if the float switch is not soiled.



G071796

Checking the level of processing solution

Pull out the filter pipe of the processing solution tank, and check that the solution level reaches the cut part in the sub tank. If not, refill water into the sub tank so that the solution level reaches to the cut part.



G071795

5. Operation sequence

Operation sequence 5101
Film processing operation 5101
Replenishment operation 5501
Replenisher mixing operation [F Specification] 5501

Film processing operation

It is explained the operation from that the leader card is set with the 135 film spliced till that it becomes ready for the next operation.

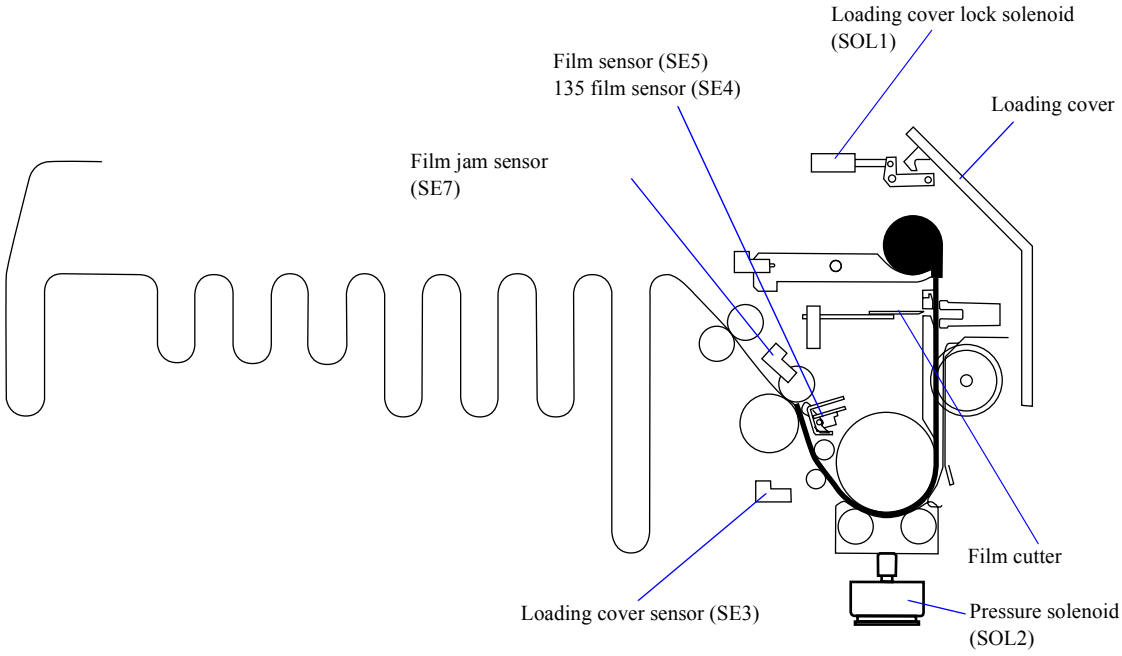
● Flow chart

1. Open the loading cover and set the leader card.

- Loading cover sensor (SE3): OPEN

NOTE
- The film cutter is set.

- Film sensor (SE5), 135 film sensor (SE4): ON



2. Close the loading cover.

- Loading cover sensor (SE3): CLOSE

When the film sensor does not turn on:

- Waiting for the leader card to be loaded
  - The loading cover is not locked.
  - The leader card is not advanced.

3. Loading cover lock

- Loading cover lock solenoid (SOL1): ON
- Ready lamp: Blinks in green

4. Film feeding starts

- Pressure solenoid (SOL2): ON

NOTE
- In one second after the loading cover lock solenoid turns ON, the pressure solenoid turns ON.

5. The film jam sensor starts monitoring the film advancing.

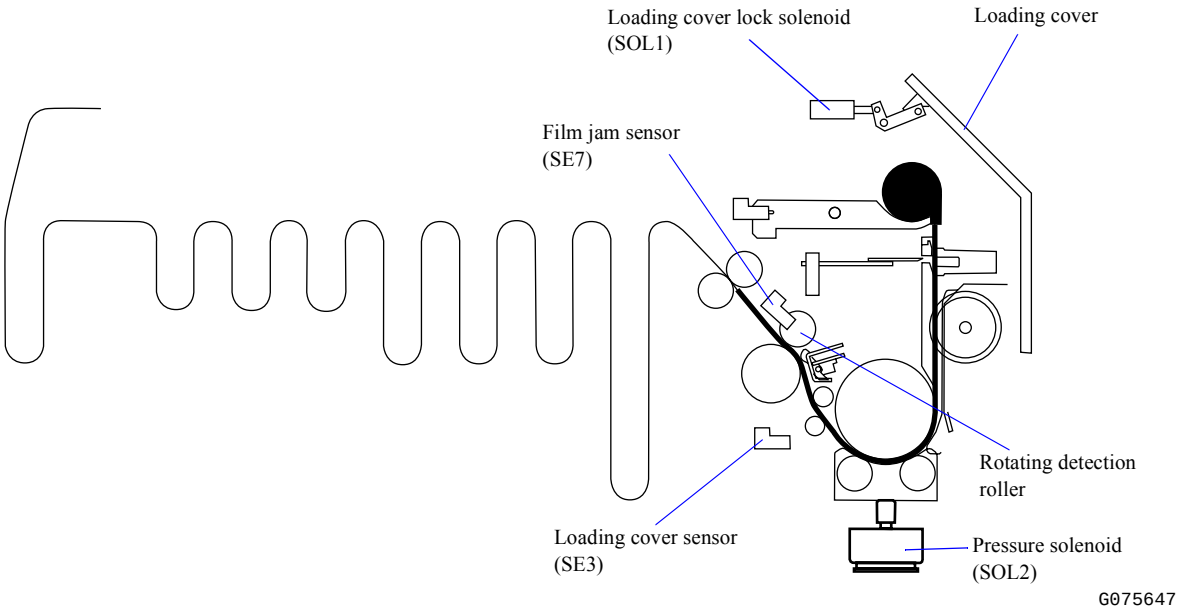
- Film jam sensor (SE7): Detects the repeat of CLOSE/OPEN.

NOTE

- The film jam sensor detects the rotation of the rotating detection roller to monitor the film advancing, and also measures the advancing distance at the same time.
- The monitoring continues until the film rear end is cut and the film sensor turns off.

When the status of the film jam sensor does not change:

- **No. 001-02 FILM STOPPED**



6. The leader card advancing is complete.

- Pressure solenoid (SOL2): OFF

NOTE

- The leader card advancing completes in a certain time after it started.
  "In a certain time" means the time that the leader card arrives to the sprocket of processing rack No. 1.

7. Film size detection

- 135 film sensor (SE7)

NOTE

- After advancing the leader card as much as its length, check the 135 film sensor.
  If it remains to be ON, it is judged as 135 film.

When 135 film sensor turns OFF:

- It is judged as a film other than 135, and the message **ERROR No. 002-01 FILM CUTTER NOT MOVED** does not appear.

8. During film advancing (135 forced pressure)

- Turning for a certain time before passing the rear end cut position of 12EXP, 18EXP, 24EXP and 36EXP, pressure solenoid (SOL2): ON

NOTE

- To press the film securely at the film rear end cut, the film is to be pressed compulsorily at the possible length of the rear end to be cut.
- Because the compulsory pressure is performed, the film is pressed securely when cutting the rear end even if the pressure sensor (SE1) does not become CLOSE.

9. The pressure sensor detects the film rear end.

- Pressure sensor (SE1): CLOSE
- Pressure solenoid (SOL2): ON

NOTE

- Normally, as the compulsory pressure is performed, the pressure solenoid (SOL2) has already turned on.
- Even if the compulsory pressure is not performed for some reason, turning the pressure sensor (SE1) to CLOSE makes the pressure solenoid (SOL2) ON and it is pressed when cutting the rear end.

When the pressure sensor does not become CLOSE even though the film has been advanced 2 m or more:

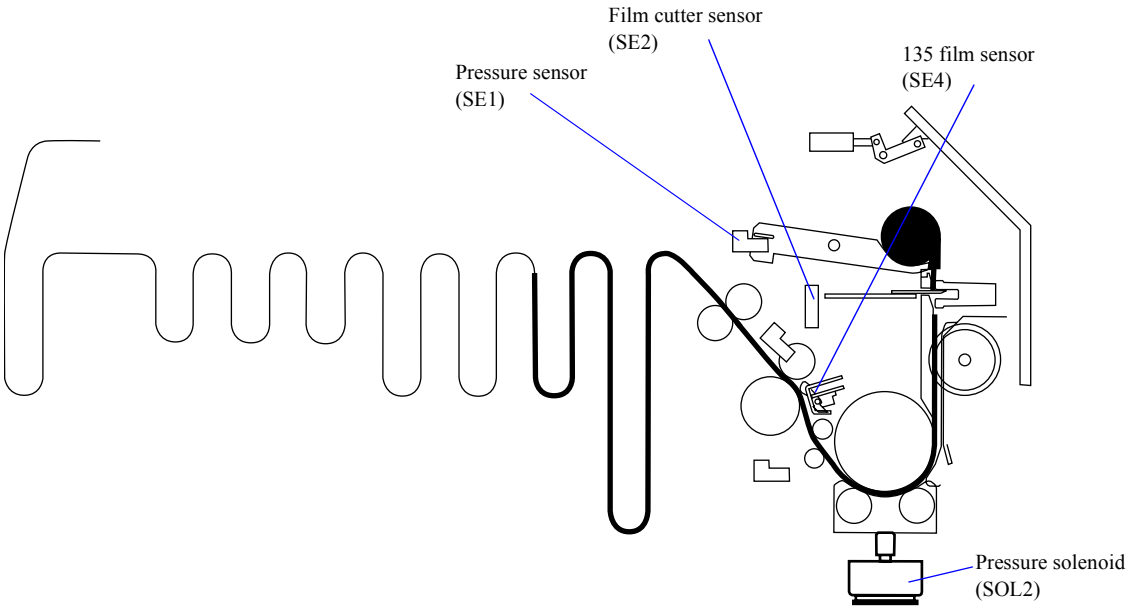
- **No. 001-01 FILM STOPPED**

10. The film rear end is cut.

- The film cutter operates.
- Film cutter sensor (SE2): OPEN

When the film cutter sensor does not become OPEN:

- **No. 002-01 FILM CUTTER NOT MOVED**



G075648

11. The film sensor detects the film rear end.

- Film sensor (SE5): OFF

When the film sensor does not turn OFF:

- **No. 001-01 FILM STOPPED**

12. The pressure is released.

- Pressure solenoid (SOL2): OFF

13. The film jam sensor finishes monitoring the film advancing.

- Film jam sensor (SE7)

NOTE

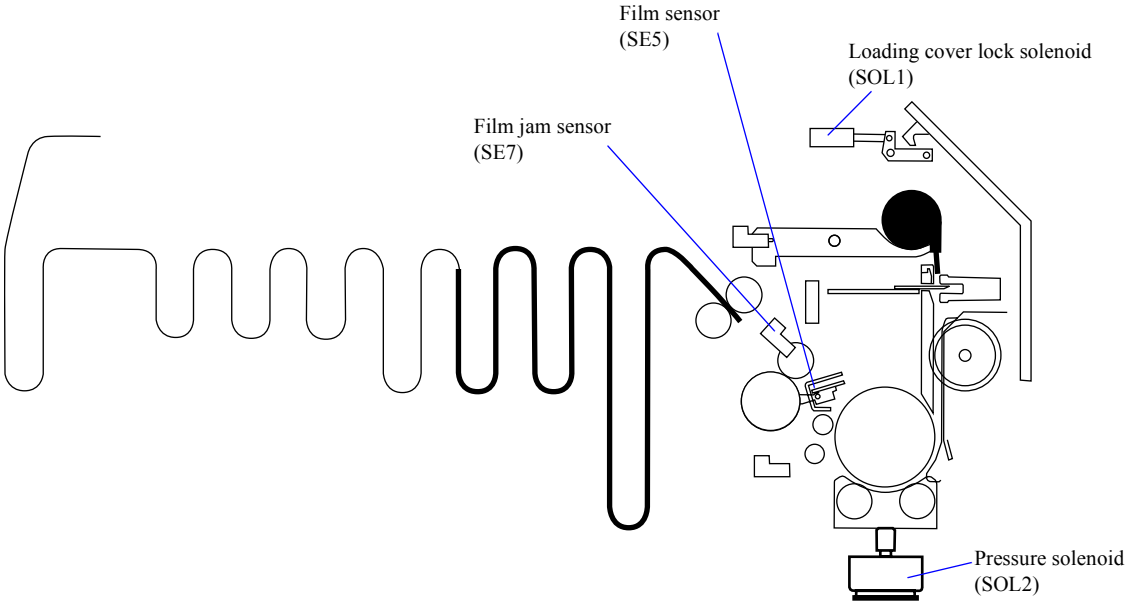
- Monitoring the film advancing starts from Step 5 and it continues until this step.
  When the status of the film jam sensor has not changed for a certain time during monitoring, the message **No. 001-02 FILM STOPPED** occurs.

14. The film count is counted up.

- Counter (CO): ON

15. Replenishment starts.

16. The interval time is started to count.



G075649

17. The interval time is finished to count.

18. Loading cover lock is released.

- Loading cover lock solenoid (SOL1): OFF

19. It is possible to process.

- Buzzer: beep sound
- Ready lamp: lights in green

Replenisher mixing operation [F Specification]

This section explains the replenisher mixing operation flow.

● Flow chart

1. If the replenisher tanks had **No solution** or you selected **REPLENISHER MIXING** in **INSTALLATION OPERATION**.

NOTE
- If you select **AUTO MIXING** in **INSTALLATION OPERATION**, **AIR REMOVAL** operates after **REPLENISHER MIXING**.

2. Check that solution is ready to be mixed.

If it is not ready, the following errors occur.

When the replenisher cartridge set sensor is LIGHT:
- ☞ No. 204 [F]**SET REPL CARTRIDGE.**

When the interlock switch (replenisher section door) is LIGHT:
- ☞ No. 212 [F]**CARTRIDGE SETTING UNIT.**

When the replenishment solution level sensor (upper water level) is LIGHT:
- ☞ No. 201 [F]**WATER IS INSUFFICIENT FOR MIXING.**

IMPORTANT
- When you perform **AUTO MIXING**, follow the message and fill water to the brim of the **Water supply tank**.

When the replenisher cartridge position sensor (lower) is DARK before the replenisher cartridge set is lowered:
- ☞ No. 235 [F]**SETTING UNIT LIMIT DETECTOR ABNORMAL**

When any of (lower) replenisher level sensors is DARK:
- ☞ No. 237 [F]**REPL LOWER LEVEL ABNORMAL**

3. Lower the replenisher cartridge set to the cartridge open/close position.

- Replenisher cartridge open/close motor: ON

4. The replenisher cartridge position sensor (lower) turns DARK.

- Replenisher cartridge open/close motor: OFF

When the replenisher cartridge position sensor (upper) does not turn to LIGHT even after a specified time has passed:
- ☞ No. 272 [F]**OPENING MOTOR OR UPPER DETECTOR IS ABNORMAL**

When the replenisher cartridge position sensor (lower) does not turn to DARK even after a specified time has passed:
- ☞ No. 208 [F]**CARTRIDGE SETTING UNIT DOES NOT GO DOWN**

5. The system stops for a certain time until the replenishment solution is ejected from the replenisher cartridge.

When the replenisher level sensor (lower) does not turn DARK even after a specified time has passed:
- ☞ No. 255 [F]**LOWER DETECTOR DOES NOT DETECT SOLUTION**

When all replenisher level sensors (lower) do not turn DARK even after a specified time has passed:
- ☞ No. 202 [F]**REPL CARTRIDGE USED UP.**

6. After a certain time, move up the replenisher cartridge set to the cartridge cleaning position.

- Replenisher cartridge open/close motor: ON→OFF

7. Start cleaning/agitating the replenisher cartridge.

- Replenisher cartridge cleaning pump: ON→OFF
- Cartridge cleaning valve: ON→OFF
- Agitation valve: ON→OFF

NOTE
- N1RA and N1RB are only subject to agitation.
- The replenisher cartridge is cleaned and agitated in order of N1RA→N2R→N3R for the NC1 replenisher cartridge, and N1RB→N4R for the NC2 replenisher cartridge.

When all replenisher level sensors (upper) do not turn DARK even after a certain time:

- ☞ No. 220 [F]**REPL NOT PREPARED**

NOTE
- When operating **AUTO MIXING** in **Setting operation**, no error occurs even if the N2R or N3R replenishment solution level sensor (upper) remains LIGHT.

8. Raise the replenisher cartridge set to the cap cleaning position.

- Cartridge open/close motor: ON→OFF

9. The replenisher cartridge position sensor (upper) turns DARK.

- Replenisher cartridge open/close motor: OFF

When the replenisher cartridge position sensor (upper) does not turn DARK even after a specified time has passed:

- ☞ No. 206 [F]**CARTRIDGE SETTING UNIT DOES NOT GO UP.**

10. Clean the cap.

- Replenisher cartridge cleaning pump: ON→OFF
- Cartridge cleaning valve: ON→OFF

11. Lower the replenisher cartridge set to the cartridge open/close position.

- Cartridge open/close motor: ON

12. The replenisher cartridge position sensor (lower) turns DARK.

- Replenisher cartridge open/close motor: OFF

When the replenisher cartridge position sensor (lower) does not turn to DARK even after a specified time has passed:

- ☞ No. 208 [F]**CARTRIDGE SETTING UNIT DOES NOT GO DOWN**

13. Move up the replenisher cartridge set to the cartridge set position.

- Cartridge open/close motor: ON→OFF

When the replenisher cartridge position sensor (upper) does not turn DARK even after a specified time has passed:

- ☞ No. 206 [F]**CARTRIDGE SETTING UNIT DOES NOT GO UP.**

14. **REPLENISHER MIXING** is completed.

6. Electrical parts

Change specification 6001
Power supply specification (Single phase, two wires AC100-240 V) 6001
Position of electrical parts 6101
Loading section, control box section (position of electrical parts) 6101
Processor section (positions of electrical parts) [N] 6111
Processor section (positions of electrical parts) [SM] 6111
Processor section (positions of electrical parts) [F] 6111
Processor section (list for adjustment after replacing electrical parts) [F] 6151
Position of PCB, motor driver and power supply 6201
Position [N] of PCB, motor driver and power supply 6201
Position [SM] of PCB, motor driver and power supply 6201
Position [F] of PCB, motor driver and power supply 6201
Description of PCB 6301
Main control PCB (J391283) 6301
Power PCB 1 (J391282) 6311
Power PCB 2 (J391284) [N] 6321
Power PCB 2 (J391284) [SM] 6321
Power PCB 2 (J391284) [F] 6321
Connecting PCB (J490373) 6331
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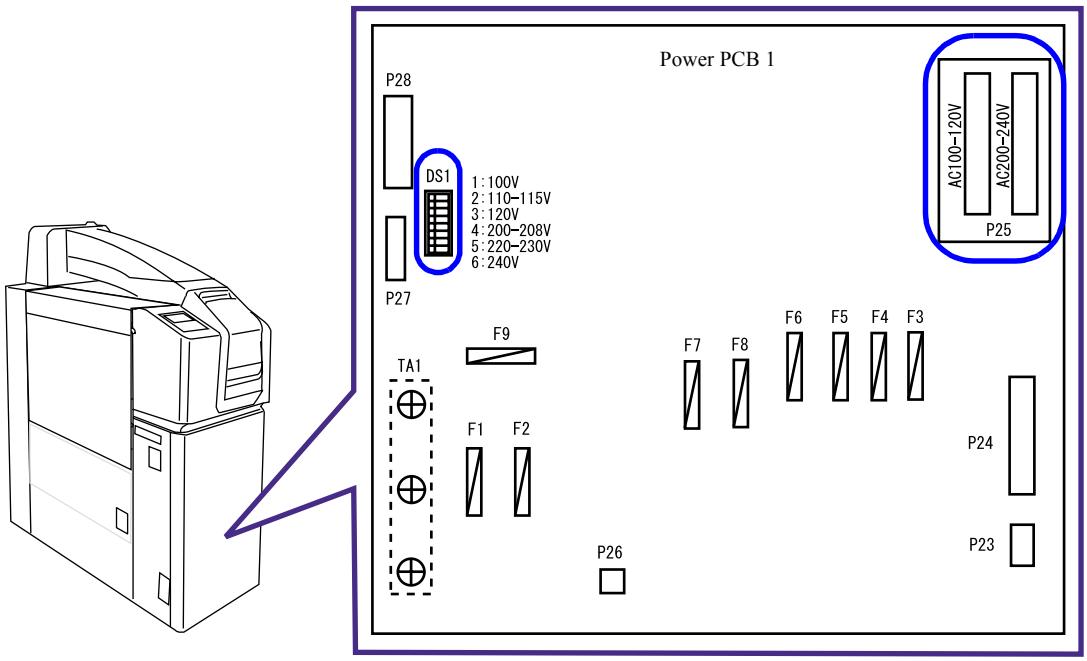
F replenishment (J391323) 6361
Description of the power supply 6401
DC power supply 6401

Power supply specification (Single phase, two wires AC100-240 V)

⚠WARNING

- Before operation, be sure to turn OFF the drive switch and the circuit breaker, and then disconnect the power cable from the power receptacle.
- When the optional drive power unit is equipped, be sure to disconnect the connector(J/P901) of the battery pack before operation. Refer to ☞6351.

For changing the power supply specification, carry out the setting change of DS1 on the power PCB1 and the connecting place change of the connector J25.



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● Changing procedure

1. Carry out the change-over of DS1 and the connecting change of the connector (J25) according to the power supply voltage supplied to this machine.

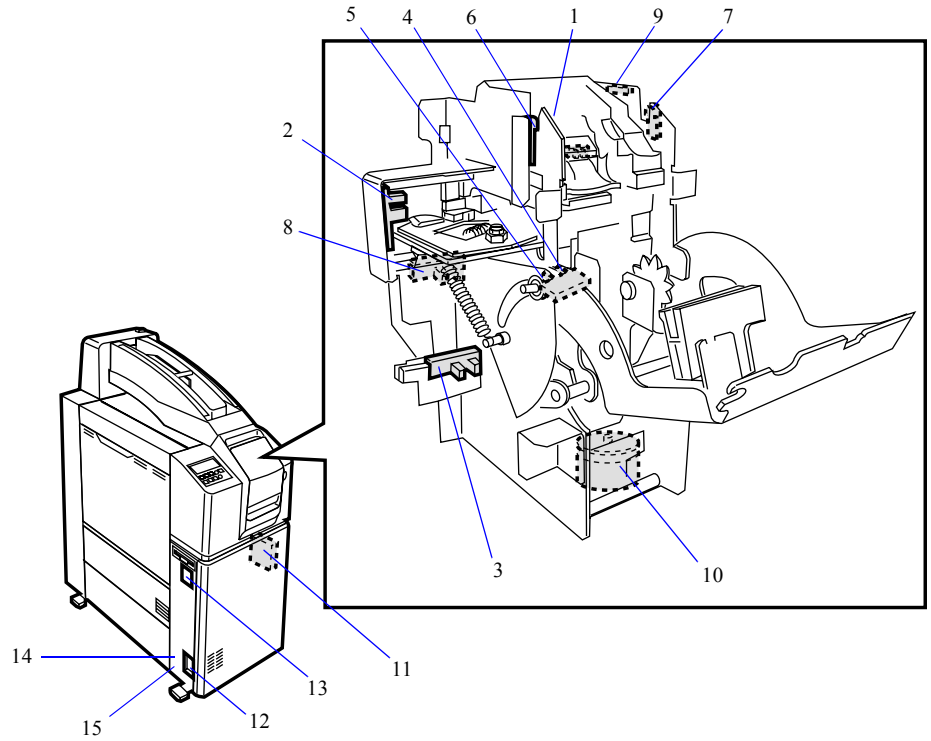
Power supply voltage	Setting from DS1-1 to DS1-6	Connection of the connector (J25)
100 V	ON for 1 (others OFF)	AC 100-120 V
From 110 V to 115 V	ON for 2 (others OFF)	
120 V	ON for 3 (others OFF)	
From 200 V to 208 V	ON for 4 (others OFF)	AC 200-240 V
From 220 V to 230 V	ON for 5 (others OFF)	
240 V	ON for 6 (others OFF)	

2. Checking the description on the plate

Check the plate attached around the circuit breaker to see if the description on the plate matches with the power supply specification.

Loading section, control box section (position of electrical parts)

● Layout diagram



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Loading section

No.	Name	Symbol	Remarks
1	Pressure sensor	SE1	
2	Film cutter sensor	SE2	
3	Loading cover sensor	SE3	
4	135 film sensor	SE4	
5	Film sensor	SE5	
6	Film cartridge sensor (detection)	SE6	APS (Option)
7	Film cartridge sensor (LED)		
8	Film jam sensor	SE7	
9	Loading cover lock solenoid	SOL1	
10	Pressure solenoid	SOL2	

Control box section

No.	Name	Symbol	Remarks
11	Control box cooling fan	FAN5	
12	Circuit breaker	NFB	
13	Drive switch	SW1	
14	Hour meter	HM	
15	Counter	CO	

Operation specification of the fan

Name	Symbol	Operation condition
Control box cooling fan	FAN5	The fan is always ON.

NOTE

- Fan operation is off during the program timer.

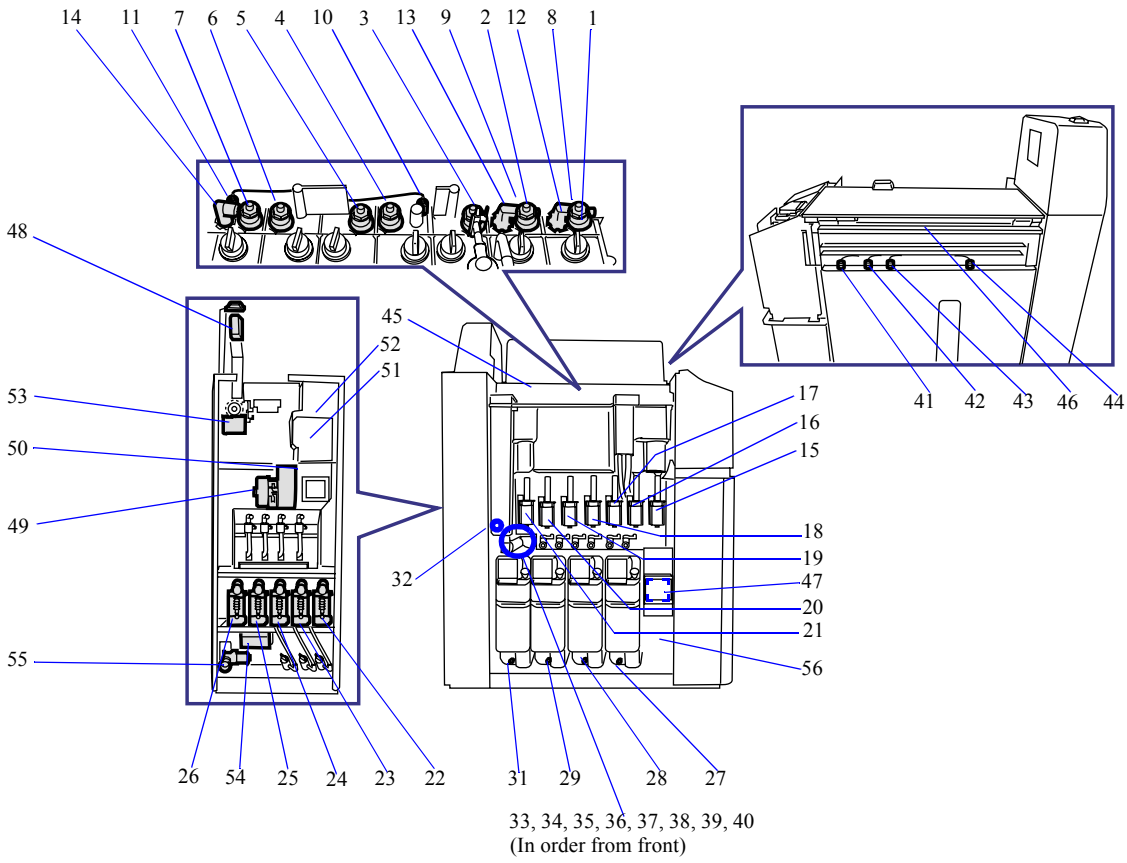
Processor section (positions of electrical parts) [N]

Description for each specification

The described section is different depending on the specifications. See below for the description for each specification.

- For SM specification, refer to ☞ Processor section (positions of electrical parts) [SM].
- For F specification, refer to ☞ Processor section (positions of electrical parts) [F].

● Layout diagram



G075627

Processor section

No.	Name	Symbol	Remarks
1	CD processing solution float switch	FS1	
2	BL processing solution float switch	FS2	
3	FIX1 processing solution float switch	FS3	
4	FIX2 processing solution float switch	FS4	
5	STB1 processing solution float switch	FS5	
6	STB2 processing solution float switch	FS6	
7	STB3 processing solution float switch	FS7	
8	CD thermosensor	TH1	
9	BL thermosensor	TH2	
10	FIX thermosensor	TH3	
11	STB thermosensor	TH4	
12	CD heater	H1	
13	BL heater	H2	

No.	Name	Symbol	Remarks
14	STB heater	H3	
15	CD circulation pump	P1	
16	BL circulation pump	P2	
17	FIX1 circulation pump	P3	
18	FIX2 circulation pump	P4	
19	STB1 circulation pump	P5	
20	STB2 circulation pump	P6	
21	STB3 circulation pump	P7	
22	CD replenisher pump	RP1	
23	BL replenisher pump	RP2	
24	FIX replenisher pump	RP3	
25	STB replenisher pump	RP4	When the processing specification is CN-16L, NS replenisher pump (RP5) is installed.
26	STB replenisher pump	RP4	Do not install except CN-16L.
27	CD replenisher level sensor	LSE5	
28	BL replenisher level sensor	LSE6	
29	FIX replenisher level sensor	LSE7	
30	NS replenisher level sensor	LSE8	When the processing specification is CN-16L, NS replenisher solution tank is added.
31	STB replenisher level sensor	LSE9	
32	Refilling water tank level sensor	LSE10	
33	CD-W refilling water pump	P8	
34	BL-W refilling water pump	P9	
35	FIX1-W refilling water pump	P10	
36	FIX2-W refilling water pump	P11	
37	STB1-W refilling water pump	P12	When the processing specification is CN-16L, use NS-W replenisher pump.
38	STB2-W refilling water pump	P13	When the processing specification is CN-16L, use STB1-W replenisher pump.
39	STB3-W refilling water pump	P14	When the processing specification is CN-16L, use STB2-W replenisher pump.
40	Cleaning pump	P15	
41	CD effluent level sensor	LSE1	
42	BL effluent level sensor	LSE2	
43	FIX effluent level sensor	LSE3	
44	STB effluent level sensor	LSE4	
45	Top cover sensor	LS2	
46	Rack stopper sensor	LS1	
47	CD circulation pump cooling fan	FAN1	Blowing☞Operation specification of the fan
48	Exhaust fan	FAN2	Exhaust☞Operation specification of the fan
49	Dryer fan	FAN4	☞Operation specification of the fan
50	Dryer thermosensor	TH5	
51	Dryer heater	H4	
52	Dryer safety thermostat	STH	
53	Drive motor	M	RoHS-compliant/non-RoHS-compliant ☞Compatibility with drive motor and motor driver
54	Aeration pump	AP	
55	CD cooling water solenoid valve	MV	
56	CD digital flowmeter	FLM	

Operation specification of the fan

Name	Symbol	Operation condition
CD circulation pump cooling fan	FAN1	The fan switches ON and OFF by change±0.2 °C of CD setting temperature.
Exhaust fan	FAN2	The fan is always ON.
Dryer fan	FAN4	When processing a film (heater is activated): ON

NOTE

- If the top cover is open during the program timer, the exhaust fan turns off.
- For a fan other than the exhaust fan, operation is off during the program timer.

● Compatibility with drive motor and motor driver

There are 2 types (RoHS-compliant/non-RoHS-compliant) of drive motor and motor driver. (Non-RoHS-compliant is discontinued.)

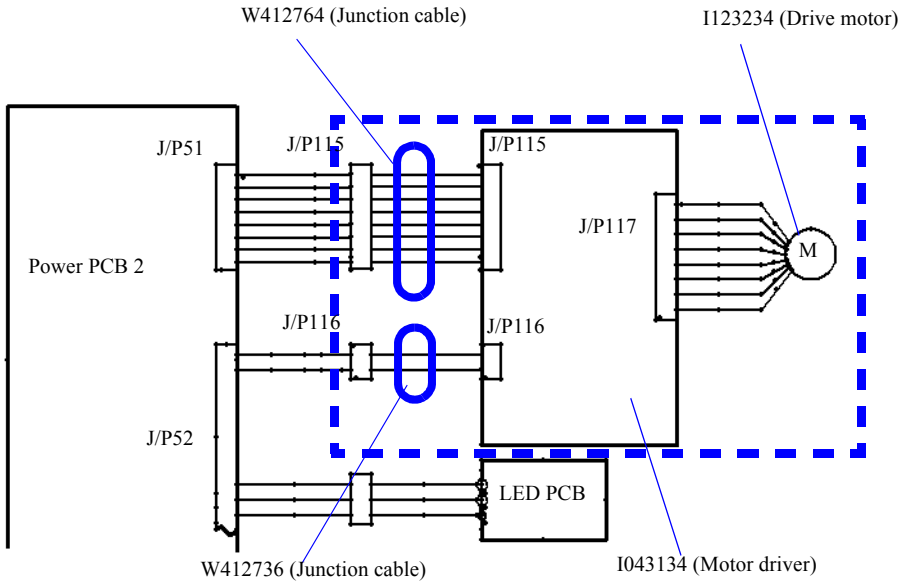
IMPORTANT

- Since drive motors and motor drivers are incompatible with each other, they must be replaced simultaneously.

Description	Discontinued product (non-RoHS-compliant)	Substitute (RoHS-compliant)
Drive motor	I123162	I123234
Motor driver	I043132	I043134

- When replacing a discontinued product with a substitute, the following junction cables must be prepared since it is incompatible with the motor driver connector.

Description	Part No.
Cable unit	W412764
Cable unit	W412736



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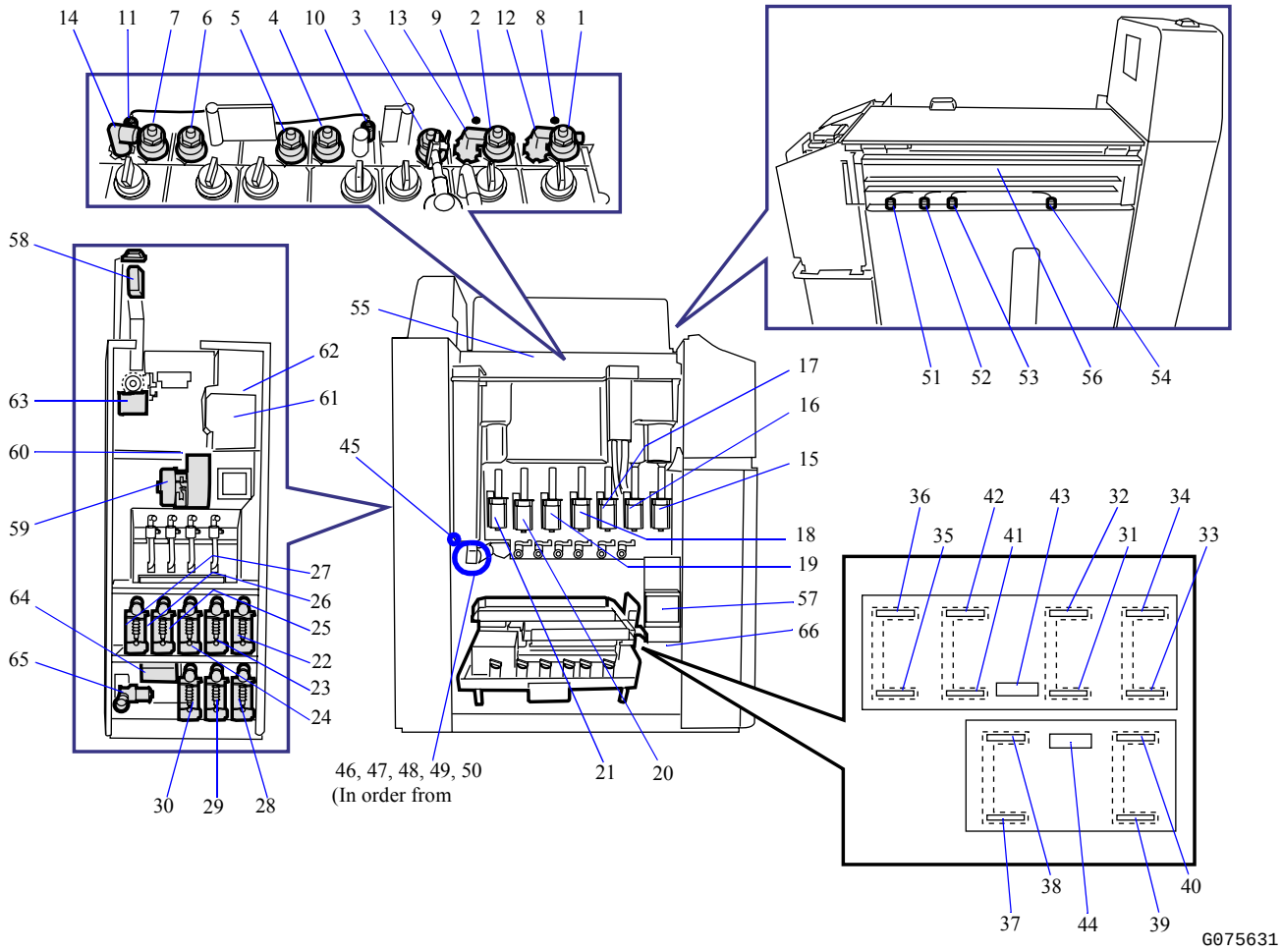
Processor section (positions of electrical parts) [SM]

Description for each specification

The described section is different depending on the specifications. See below for the description for each specification.

- For N specification, refer to ☞ Processor section (positions of electrical parts) [N].
- For F specification, refer to ☞ Processor section (positions of electrical parts) [F].

● Layout diagram



Processor section

No.	Name	Symbol	Remarks
1	CD processing solution float switch	FS1	
2	BL processing solution float switch	FS2	
3	FIX1 processing solution float switch	FS3	
4	FIX2 processing solution float switch	FS4	
5	STB1 processing solution float switch	FS5	
6	STB2 processing solution float switch	FS6	
7	STB3 processing solution float switch	FS7	
8	CD thermosensor	TH1	
9	BL thermosensor	TH2	
10	FIX thermosensor	TH3	
11	STB thermosensor	TH4	
12	CD heater	H1	

No.	Name	Symbol	Remarks
13	BL heater	H2	
14	STB heater	H3	
15	CD circulation pump	P1	
16	BL circulation pump	P2	
17	FIX1 circulation pump	P3	
18	FIX2 circulation pump	P4	
19	STB1 circulation pump	P5	
20	STB2 circulation pump	P6	
21	STB3 circulation pump	P7	
22	CD-A replenisher pump	RP1	
23	CD-B replenisher pump	RP2	
24	CD-C replenisher pump	RP3	
25	BL replenisher pump	RP4	
26	FIX replenisher pump	RP5	
27	STB replenisher pump	RP6	
28	CD-W water supply pump	RP7	
29	FIX-W water supply pump	RP8	
30	STB-W water supply pump	RP9	
31	CD-A replenisher sensor (LED)	SE12	
32	CD-A replenisher sensor (detection)		
33	CD-B replenisher sensor (LED)	SE13	
34	CD-B replenisher sensor (detection)		
35	CD-C replenisher sensor (LED)	SE10	
36	CD-C replenisher sensor (detection)		
37	BL replenisher sensor (LED)	SE8	
38	BL replenisher sensor (detection)		
39	FIX replenisher sensor (LED)	SE9	
40	FIX replenisher sensor (detection)		
41	STB replenisher sensor (LED)	SE11	
42	STB replenisher sensor (detection)		
43	Replenisher package sensor (F-1)	LS3	
44	Replenisher package sensor (F-2)	LS4	
45	Water supply tank level sensor	LSE10	
46	BL-W refilling water pump	P9	
47	FIX1-W refilling water pump	P10	
48	STB1-W refilling water pump	P12	
49	STB2-W refilling water pump	P13	
50	Cleaning pump	P15	
51	CD effluent level sensor	LSE1	
52	BL effluent level sensor	LSE2	
53	FIX effluent level sensor	LSE3	
54	STB effluent level sensor	LSE4	
55	Top cover sensor	LS2	
56	Rack stopper sensor	LS1	
57	CD circulation pump cooling fan	FAN1	☞ Operation specification of the fan
58	Exhaust fan	FAN2	☞ Operation specification of the fan
59	Dryer fan	FAN4	☞ Operation specification of the fan
60	Dryer thermosensor	TH5	
61	Dryer heater	H4	

No.	Name	Symbol	Remarks
62	Dryer safety thermostat	STH	
63	Drive motor	M	RoHS-compliant/non-RoHS-compliant ☞Compatibility with drive motor and motor driver
64	Aeration pump	AP	
65	CD cooling water solenoid valve	MV	
66	CD digital flowmeter	FLM	

Operation specification of the fan

Name	Symbol	Operation condition
CD circulation pump cooling fan	FAN1	The fan switches ON and OFF by change ±0.2 °C of CD setting temperature.
Exhaust fan	FAN2	The fan is always ON.
Dryer fan	FAN4	When processing a film (heater is activated): ON

NOTE

- If the top cover opens during the program timer, the exhaust fan turn off.
- For a fan other than the exhaust fan, operation is off during the program timer.

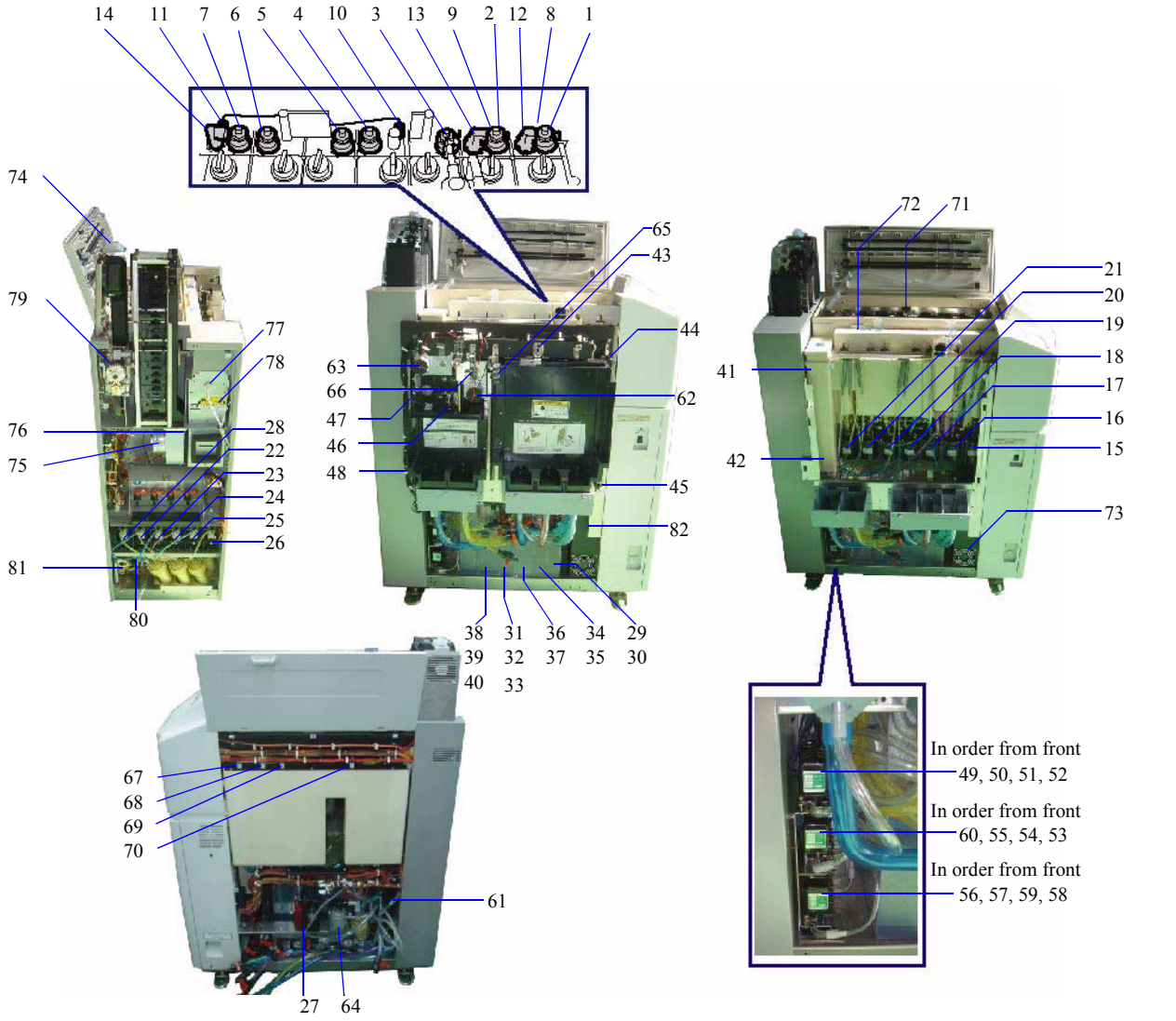
Processor section (positions of electrical parts) [F]

Description for each specification

The described section is different depending on the specifications. See below for the description for each specification.

- For N specification, refer to ☞ Processor section (positions of electrical parts) [N].
- For SM specification, refer to ☞ Processor section (positions of electrical parts) [SM].

● Layout diagram



Processor section

No.	Name	Symbol	Remarks
1	CD processing solution float switch	FS1	
2	BL processing solution float switch	FS2	
3	FIX1 processing solution float switch	FS3	
4	FIX2 processing solution float switch	FS4	
5	STB1 processing solution float switch	FS5	
6	STB2 processing solution float switch	FS6	
7	STB3 processing solution float switch	FS7	
8	CD thermosensor	TH1	

No.	Name	Symbol	Remarks
9	BL thermosensor	TH2	
10	FIX thermosensor	TH3	
11	STB thermosensor	TH4	
12	CD heater	H1	
13	BL heater	H2	
14	STB heater	H3	
15	CD circulation pump	P1	
16	BL circulation pump	P2	
17	FIX1 circulation pump	P3	
18	FIX2 circulation pump	P4	
19	STB1 circulation pump	P5	
20	STB2 circulation pump	P6	
21	STB3 circulation pump	P7	
22	N1RA REPLENISHER PUMP	RP1	*1
23	N1RB REPLENISHER PUMP	RP2	*1
24	N2R REPLENISHER PUMP	RP3	*1
25	N3R REPLENISHER PUMP	RP4	*1
26	N4R REPLENISHER PUMP	RP5	*1
27	Refilling water pump	RP6	*1
28	N3W cascade replenisher pump	RP7	*1
29	N3R (upper) replenishment solution level sensor	SE21	☞ Details of the replenishment solution level sensor*1
30	N3R (lower) replenishment solution level sensor	SE22	
31	N4R (upper) replenishment solution level sensor	SE23	
32	N4R (middle) replenishment solution level sensor	SE24	
33	N4R (lower) replenishment solution level sensor	SE25	
34	N2 (upper) replenishment solution level sensor	SE19	
35	N2R (lower) replenishment solution level sensor	SE20	
36	N1RA (upper) replenishment solution level sensor	SE14	
37	N1RA (lower) replenishment solution level sensor	SE15	
38	N1RB (upper) replenishment solution level sensor	SE16	
39	N1RB (middle) replenishment solution level sensor	SE17	
40	N1RB (lower) replenishment solution level sensor	SE18	
41	Replenishment solution level sensor (upper water level)	SE26	
42	Replenishment solution level sensor (lower water level)	SE27	
43	NC1 cartridge set sensor	SE28	
44	NC1 replenisher cartridge position sensor (upper)	SE29	*1
45	NC1 replenisher cartridge position sensor (lower)	SE30	*1
46	NC2 cartridge set sensor	SE31	
47	NC2 replenisher cartridge position sensor (upper)	SE32	*1
48	NC2 replenisher cartridge position sensor (lower)	SE33	*1
49	N1RA cartridge cleaning valve	MV2	*1
50	N1RB cartridge cleaning valve	MV3	*1
51	N2R cartridge cleaning valve	MV4	*1

No.	Name	Symbol	Remarks
52	N3R cartridge cleaning valve	MV5	*1
53	N4R cartridge cleaning valve	MV6	*1
54	N1RA AGITATION VALVE	MV7	*1
55	N1RB AGITATION VALVE	MV8	*1
56	N1 W ADDING WATER VALVE	MV9	*1
57	N2 W ADDING WATER VALVE	MV10	*1
58	N42 W ADDING WATER VALVE	MV11	*1
59	N43 W ADDING WATER VALVE	MV12	*1
60	AUTO CLEANING VALVE	MV13	*1
61	N31 W , N32 W ADDING WATER VALVE	MV14	*1
62	NC1 replenisher cartridge open/close motor	DM1	*1
63	NC2 replenisher cartridge open/close motor	DM2	*1
64	Replenisher cartridge cleaning pump	P17	*1
65	INTERLOCK (REPL SEC 1)	LS5	
66	INTERLOCK (REPL SEC 2)	LS6	
67	CD effluent level sensor	LSE1	
68	BL effluent level sensor	LSE2	
69	FIX effluent level sensor	LSE3	
70	STB effluent level sensor	LSE4	
71	Rack stopper sensor	LS1	
72	Top cover sensor	LS2	
73	CD circulation pump cooling fan	FAN1	☞ Operation specification of the fan
74	Exhaust fan	FAN2	☞ Operation specification of the fan
75	Dryer fan	FAN4	☞ Operation specification of the fan
76	Dryer thermosensor	TH5	
77	Dryer safety thermostat	STH	
78	Dryer heater	H4	
79	Drive motor	M	RoHS-compliant/non-RoHS-compliant ☞ Compatibility with drive motor and motor driver
80	Aeration pump	AP	
81	CD cooling water solenoid valve	MV	Option
82	CD digital flowmeter	FLM	Option

*1. When replacing each electrical part, refer to Processor section (list for adjustment after replacing electrical parts) ☞6151.

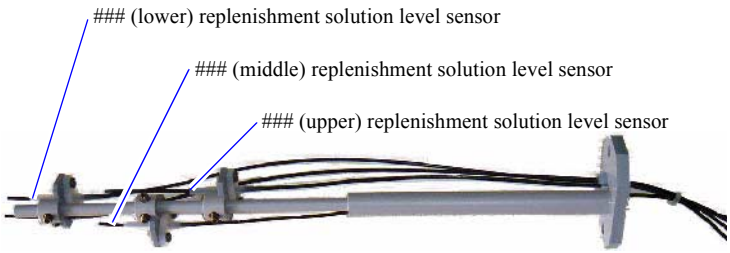
Operation specification of the fan

Name	Symbol	Operation condition
CD circulation pump cooling fan	FAN1	The fan switches ON and OFF by change ±0.2 °C of CD setting temperature.
Exhaust fan	FAN2	The fan is always ON.
Dryer fan	FAN4	When processing a film (heater is activated): ON

NOTE

- If the top cover is open during the program timer, the exhaust fan turns off.
- For a fan other than the exhaust fan, operation is off during the program timer.

Details of the replenishment solution level sensor


(lower) replenishment solution level sensor
(middle) replenishment solution level sensor
(upper) replenishment solution level sensor

G085878

For replacing the replenishment solution level sensor, refer to ☞2804.

NOTE

- ### (middle) replenishment solution level sensor is installed only for N1RB and N4R.

Processor section (list for adjustment after replacing electrical parts) [F]

Item		Adjustment option after replacement	Reference
N1RA REPLENISHER PUMP	Replacing	• Carry out **PUMP AMOUNT SETTING**.	☞ 3161
N1RB REPLENISHER PUMP			
N2R REPLENISHER PUMP			
N3R REPLENISHER PUMP			
N4R REPLENISHER PUMP			
Refilling water pump			
N3 W cascade replenisher pump			
N1RA replenishment cartridge cleaning valve *1	Replacing	• Perform **Output Check** to confirm whether the solution does not leak.	☞ 3072
N1RB replenishment cartridge cleaning valve *1			
N2R replenishment cartridge cleaning valve *1			
N3R replenishment cartridge cleaning valve *1			
N4R replenishment cartridge cleaning valve *2			
N1RA AGITATION VALVE *2			
N1RB AGITATION VALVE *2			
AUTO CLEANING VALVE *2			
N1 W ADDING WATER VALVE *3			
N2 W ADDING WATER VALVE *3			
N42 W ADDING WATER VALVE *3			
N43 W ADDING WATER VALVE *3			
N31 W , N32 W ADDING WATER VALVE			
Replenisher cartridge cleaning pump	Replacing	• Perform **Output Check** to exhaust the air from the pump.	☞ 3072
N1RA (upper) replenishment solution level sensor *4	Replacing	• Replacing the replenishment solution level sensor • If necessary, perform recovery procedure for the error occurred before replacing the replenishment solution level sensor.	☞ 2804 ☞ 4991
N1RA (lower) replenishment solution level sensor *4			
N1RB (upper) replenishment solution level sensor			
N1RB (middle) replenishment solution level sensor *5			
N1RB (lower) replenishment solution level sensor *5			
N2 (upper) replenishment solution level sensor *4			
N2R (lower) replenishment solution level sensor *4			
N3R (upper) replenishment solution level sensor *4			
N3R (lower) replenishment solution level sensor *4			
N4R (upper) replenishment solution level sensor			
N4R (middle) replenishment solution level sensor *5			
N4R (lower) replenishment solution level sensor *5			

Item		Adjustment option after replacement	Reference
NC1 replenisher cartridge open/close motor	Replacing	• If necessary, perform recovery procedure for the error occurred before replacing the replenisher cartridge open/close motor and replenisher cartridge position sensor.	☞ 4991
NC2 replenisher cartridge open/close motor			
NC1 replenisher cartridge position sensor (upper)			
NC1 replenisher cartridge position sensor (lower)			
NC2 replenisher cartridge position sensor (upper)			
NC2 replenisher cartridge position sensor (lower)			

*1. N1RA, N1RB, N2R, and N3R cartridge cleaning valves should be replaced together.
*2. N4R cartridge cleaning valve, N1RA/N1RB agitation valves and auto cleaning valves should be replaced together.
*3. N1W, N2W, N42W and N43W adding water valves should be replaced together.
*4. # # # (upper) and (lower) replenishment solution level sensors of N1RA, N2R, and N3R should be replaced together.
*5. # # # (middle) and (lower) replenishment solution level sensors of N1RB and N4R should be replaced together.

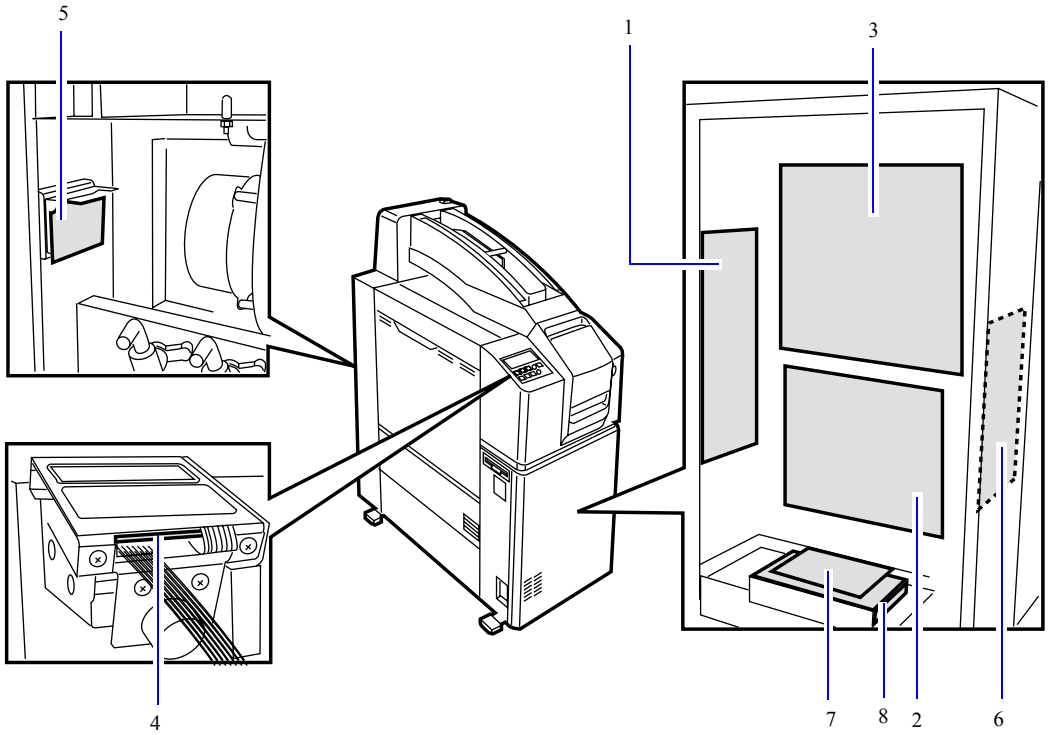
Position [N] of PCB, motor driver and power supply

Description for each specification

The described section is different depending on the specifications. See below for the description for each specification.

- For SM specification, refer to ☞ Position [SM] of PCB, motor driver and power supply.
- For F specification, refer to ☞ Position [F] of PCB, motor driver and power supply.

● Layout diagram

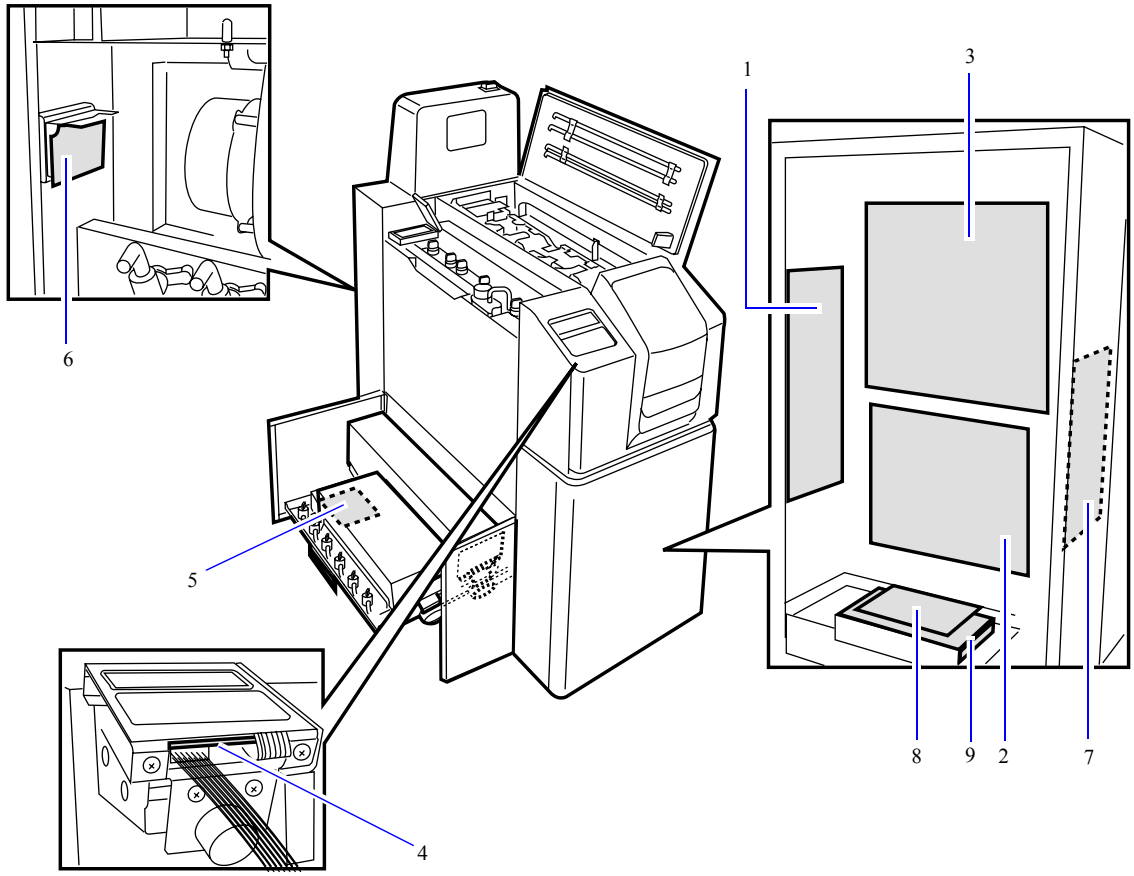


Control box

No.	Name	Symbol	Diagram No.	Manual No.	Remarks
1	Main control PCB		J391283 (J391001)	☞6301	The part in parentheses is not supported by RoHS.
2	Power PCB 1		J391282 (J390987)	☞6311	
3	Power PCB 2		J391284 (J391002)	☞6321	
4	Connecting PCB		J490373 (J490313)	☞6331	
5	Motor driver		I043134 (I043132)		The part in parentheses is not supported by RoHS. ☞Compatibility with drive motor and motor driver
6	DC power supply		I038361	☞6401	
7	Backup PCB		J390972		Option
8	Battery pack		I085024		Option

Position [SM] of PCB, motor driver and power supply

● Layout diagram



G075633

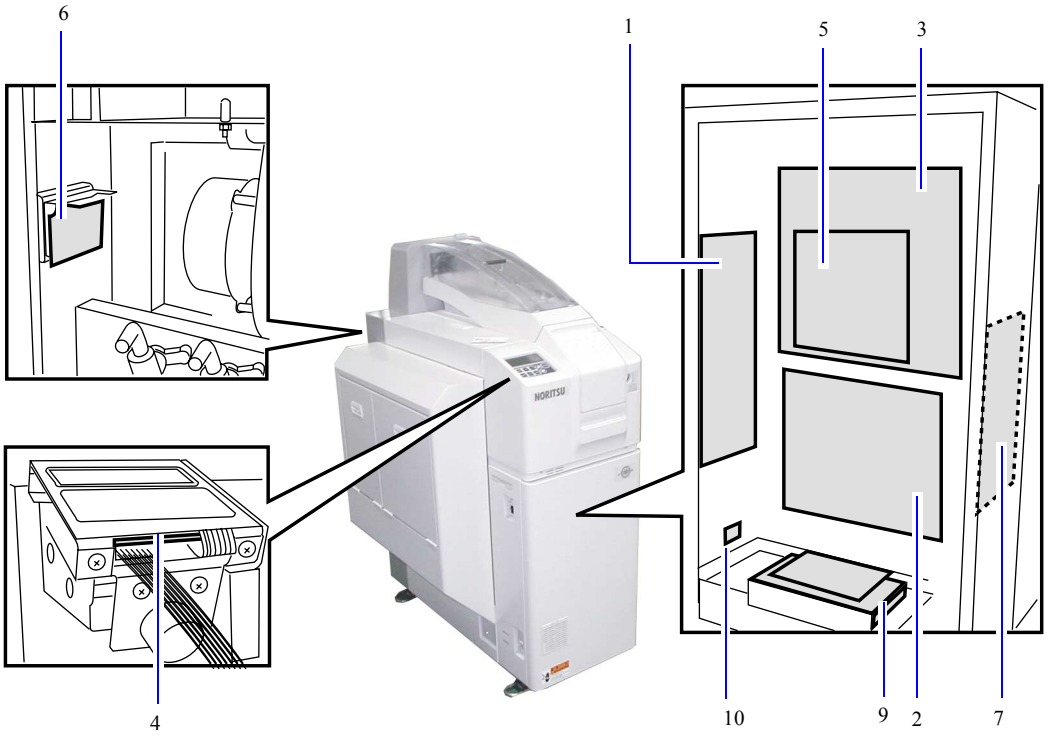
Control box

No.	Name	Symbol	Diagram No.	Manual No.	Remarks
1	Main control PCB		J391283 (J391001)	☞6301	The part in parentheses is not supported by RoHS.
2	Power PCB 1		J391282 (J390987)	☞6311	
3	Power PCB 2		J391284 (J391002)	☞6321	
4	Connecting PCB		J490373 (J490313)	☞6331	
5	SM sensor PCB		J391299 (J390623)	☞6341	
6	Motor driver		I043134 (I043132)		The part in parentheses is not supported by RoHS. ☞Compatibility with drive motor and motor driver
7	DC power supply		I038361	☞6401	
8	Backup PCB		J390972		Option

No.	Name	Symbol	Diagram No.	Manual No.	Remarks
9	Battery pack		I085024		Option

Position [F] of PCB, motor driver and power supply

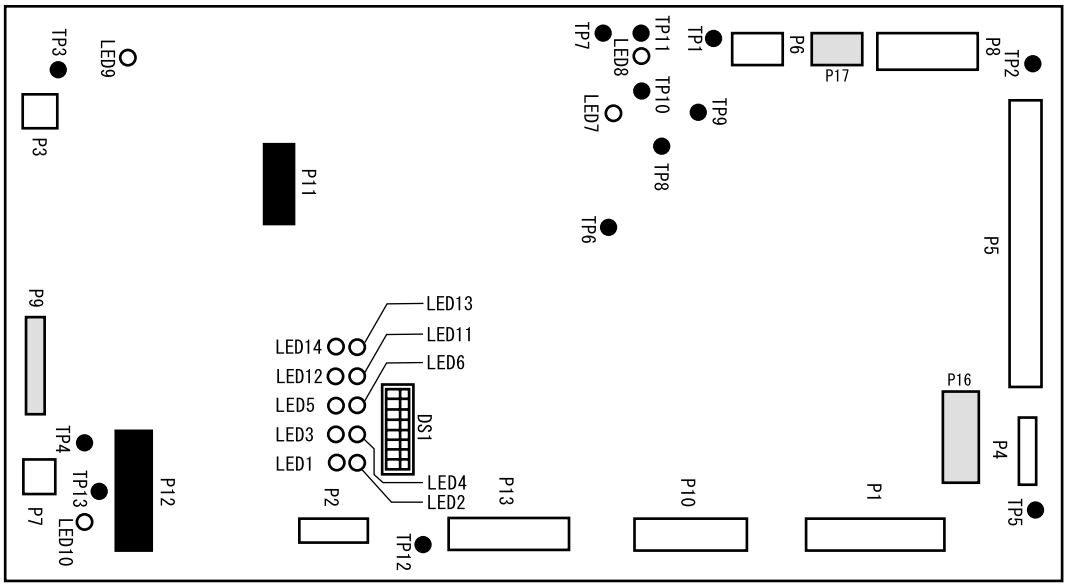
● Layout diagram



Control box

No.	Name	Symbol	Diagram No.	Manual No.	Remarks
1	Main control PCB		J391283	☞6301	
2	Power PCB 1		J391282	☞6311	
3	Power PCB 2		J391284	☞6321	
4	Connecting PCB		J490373	☞6331	
5	F replenishment/ I/O PCB		J391323	☞6361	
6	Motor driver		I043134		
7	DC power supply		I038361	☞6401	
8	Backup PCB		J390972		Option
9	Battery pack		I085024		Option
10	Temperature and humidity sensor		I096003		

Main control PCB (J391283)



G075616

NOTE

- Main control PCB (J391001) is not supported by RoHS.
- Main control PCB (J391001) cannot be used with F specification.
- The connector P16 and P17 are added to Main control PCB (J391283).

Function

- Machine control

Adjustments and precautions for PCB replacement

1. Position

- ☞6201

2. Precautions for replacement

- Back up the system data.
  ☞3091
- Check the setting of the DIP switch.

3. Adjustment after replacement

- Read the system program.
  ☞3041
- Carry out Data Initialization (all).
  ☞3131
- Read the system data.
  ☞3091
- Set the date and time.

● Unused connector

Connector No.	Purpose	Remarks
P9	Use when connecting the T-15/S1-ll connection unit	
P11	Unused	The connector may not be installed.
P12	Unused	
P16	Use with F specification	
P17		

● Component parts table

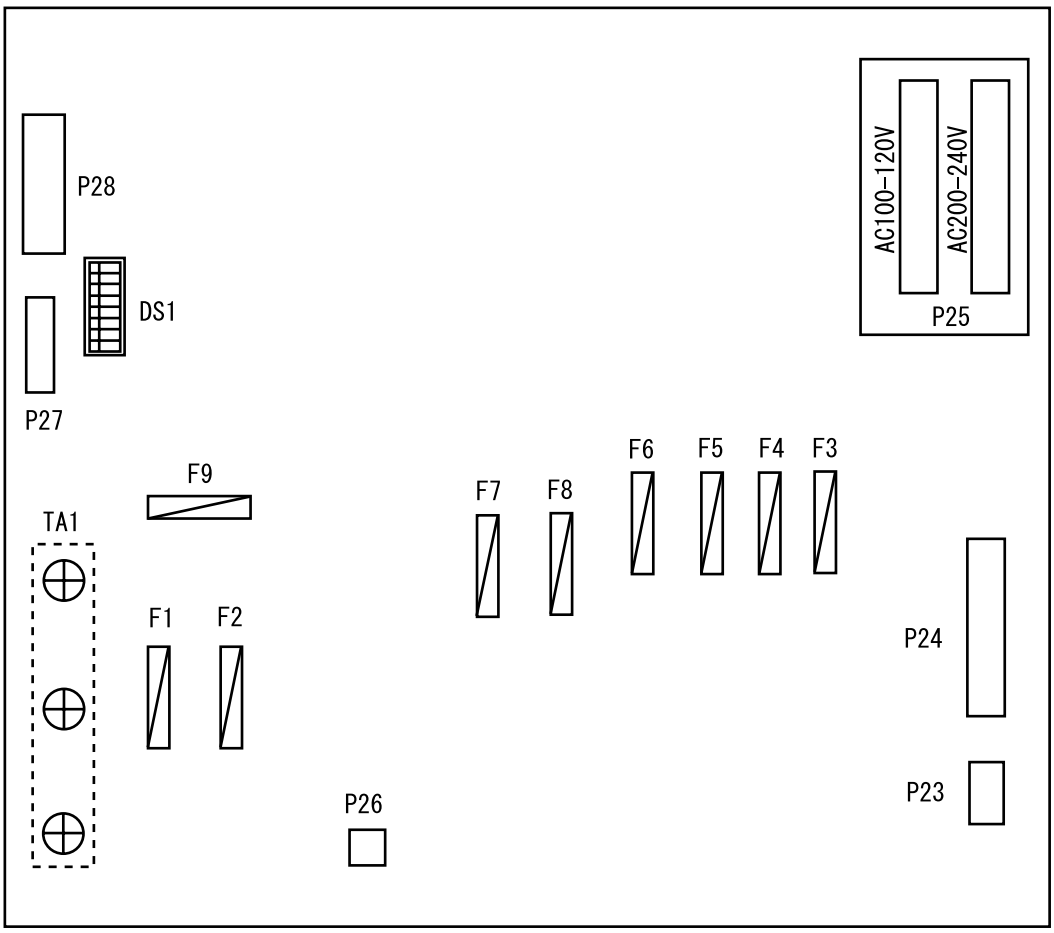
Switch No.	Bit No.	Purpose	Remarks
DS1	1	Unused	Be sure to set to OFF.
	2		
	3		
	4		
	5		
	6		
	7		
	8		

LED No.	Purpose	Status
LED1	For checking the CD heater	ON during operation
LED2	For checking the BL heater	ON during operation
LED3	Unused	
LED4	For checking the STB heater	ON during operation
LED5	For checking the DRY1 heater	ON during operation
LED6	For checking the DRY2 heater	ON during operation
LED7	DC+12 V input check	ON during supplying the power
LED8	DC+5 V input check	ON during supplying the power
LED9	DC+24 V input check	ON during supplying the power
LED10	DC+5 V input check	ON during supplying the power
LED11	Unused	
LED12	Unused	
LED13	Unused	
LED14	Unused	

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	For checking the standard voltage of the thermistor	Possible	DC+1 V Standard voltage for all of the thermosensor
TP2	Ground	Possible	
TP3	Ground	Possible	
TP4	Ground	Possible	
TP5	Ground	Possible	
TP6	Ground	Possible	
TP7	Ground	Possible	
TP8	For checking the standard voltage of A/D converter	Possible	DC+2.5 V
TP9	Unused	-	
TP10	For checking DC+12 V input voltage	Possible	

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP11	For checking DC+5 V input voltage	Possible	
TP12	For checking DC+24 V input voltage	Possible	
TP13	For checking DC+5 V input voltage	Possible	

Power PCB 1 (J391282)



G075611

NOTE
- Power PCB 1 (J390987) is not supported by RoHS.

Function

- Supplies DC power and AC power to each unit.
- Removes the power supply surge.
- Changes over the supplying voltage to dryer heater.
- Sets the input voltage.
- Changes over the speed of the drive motor depending on processing specifications.

Adjustments and precautions for PCB replacement

1. Position

- ☞ 6201

2. Precautions for replacement

- Check the setting of the DIP switch.
- Connect the connector (P25) according to the power supply specification of main body.

3. Adjustment after replacement

- None

Unused connector

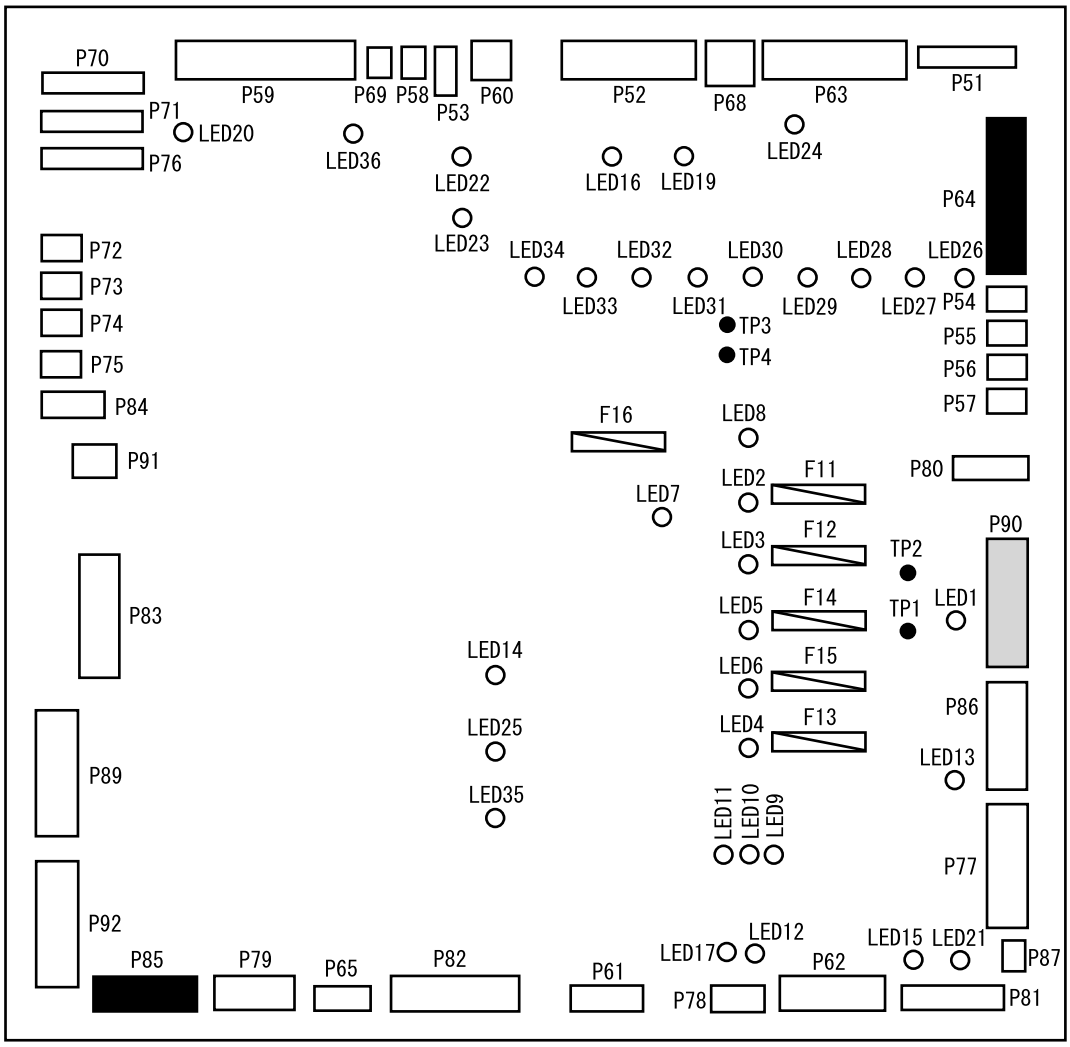
- None

Component parts table

Switch No.	Bit No.	Purpose	Voltage	Remarks
DS1	1	Input voltage setting	100 V	Turn ON only the Bit No. which voltage matches with the supply power specification of the main body.
	2		100-115 V	
	3		120 V	
	4		200-208 V	
	5		220-230 V	
	6		240 V	
	7	Unused		
	8	Drive motor speed setting		Turn ON only when the processing specification is CN-16L and CN-16S.

Fuse No.	Rating	Purpose	Remarks
F1	T5 A/250 V	Protection circuit for power surges	Replacement is not available.
F2	T5 A/250 V	Protection circuit for power surges	Replacement is not available.
F3	T6.3 A/250 V	Protection of AC power supply input	
F4	T6.3 A/250 V	Protection of AC power supply input	
F5	T10 A/250 A	Protection of AC power supply input	
F6	T10 A/250 A	Protection of AC power supply input	
F7	T6.3 A/250 V	Protection of AC power supply input	
F8	T6.3 A/250 V	Protection of AC power supply input	
F9	T1A/250 V	Protection of AC power supply input	

Power PCB 2 (J391284) [N]



Unused

Unused depending on the conditions

G075612

NOTE

- Power PCB 2 (J391002) is not supported by RoHS.

Function

- Controls each electrical part of the processor section.
- Supplies the DC power to each PCB.

Adjustments and precautions for PCB replacement

1. Position

☞6201

2. Precautions for replacement

- None

3. Adjustment after replacement

- None

Unused connector

Connector No.	Purpose	Remarks
P64	Unused	
P85	Unused	
P90	For drive power supply unit	Option

Component parts table

LED No.	Purpose	Status
LED1	DC+24 V input check	ON when supplying the power
LED2	DC+24 V–1 input check	ON when supplying the power
LED3	DC+24 V–2 input check	ON when supplying the power
LED4	DC+24 V–3 input check	ON when supplying the power
LED5	DC+24 V–4 input check	ON when supplying the power
LED6	DC+24 V–5 input check	ON when supplying the power
LED7	DC+5 V input check	ON when supplying the power
LED8	DC+24 V–6 input check	ON when supplying the power
LED9	For checking the refilling water pump operation	The LED status during operation is shown in the appendix.*1
LED10		
LED11		
LED12	For checking the cleaning pump	ON during operation
LED13	For checking the circulation pump	ON during operation
LED14	For checking the waste solution detection	OFF when the waste solution is detected.
LED15	For checking the dryer heater relay (X15)	ON during operation
LED16	For checking the dryer fan	ON during operation
LED17	For checking the CD circulation pump cooling fan	ON during operation
LED19	For checking the exhaust fan	ON during operation
LED20	For checking the processing solution level	OFF when detecting the processing solution level lower limit
LED21	For checking the relay (X13) for the processing solution heater	OFF when detecting the processing solution lower limit or operating the safety thermostat
LED22	For checking the loading cover lock solenoid	ON during operation
LED23	For checking the pressure solenoid	ON during operation
LED24	For checking the magnetic solenoid valve	ON during operation
LED25	For checking the program timer	OFF during the program timer
LED26	For checking the CD replenisher pump	ON during operation
LED27	For checking the BL replenisher pump	ON during operation
LED28	Unused	
LED29	Unused	
LED30	Unused	
LED31	For checking the FIX replenisher pump	ON during operation
LED32	For checking NS replenisher pump (CN-16L only)	ON during operation
LED33	Unused	
LED34	For checking the STB replenisher pump	ON during operation
LED35	For checking the aeration pump	ON during operation
LED36	For checking the film rear end detection	ON when the film rear end is detected.

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	For DC+24 V power supply and voltage measurement	Possible	
TP2	Ground	Possible	
TP3	For DC+5 V power supply and voltage measurement	Possible	
TP4	Ground	Possible	

Fuse No.	Rating	Purpose	Remarks
F11	T5 A/125 V	For protection of DC+24 V-1 input	
F12	T5 A/125 V	For protection of DC+24 V-2 input	
F13	T5 A/125 V	For protection of DC+24 V-3 input	
F14	T5 A/125 V	For protection of DC+24 V-4 input	
F15	T5 A/125 V	For protection of DC+24 V-5 input	
F16	T5 A/125 V	For protection of DC+24 V-6 input	

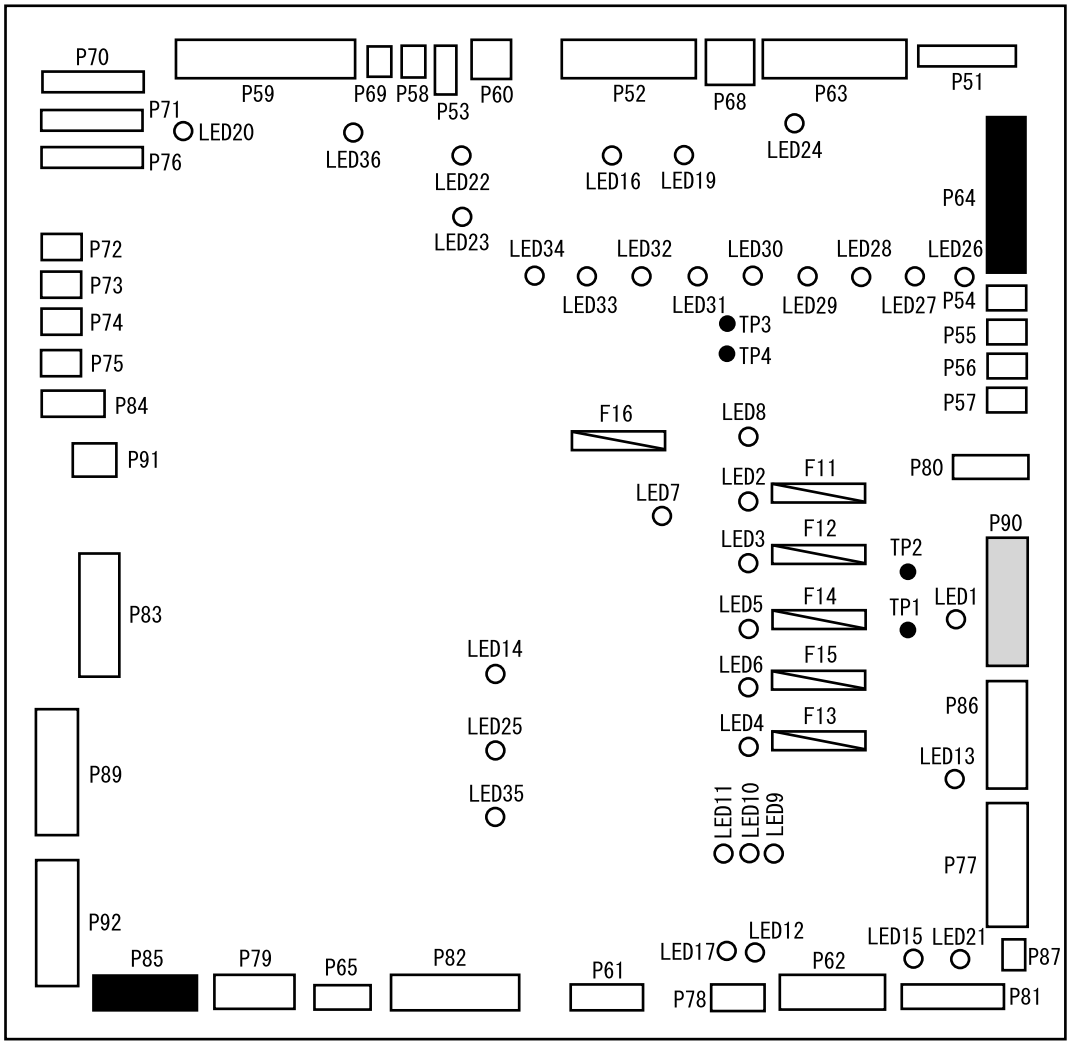
*1. Appendix (It is possible to check which pumps are operating by knowing the combination of ON status of LED9, 10 and 11.)

	CD–W Refilling water pump	BL–W Refilling water pump	FIX1–W Refilling water pump	FIX2–W Refilling water pump
LED9	ON	OFF	ON	OFF
LED10	OFF	ON	ON	OFF
LED11	OFF	OFF	OFF	ON

	*2STB1–W Refilling water pump	*3STB2–W Refilling water pump	*4STB3–W Refilling water pump
LED9	ON	OFF	ON
LED10	OFF	ON	ON
LED11	ON	ON	ON

*2. When the processing specification is CN-16L, use NS-W replenisher pump.
*3. When the processing specification is CN-16L, use STB1-W replenisher pump.
*4. When the processing specification is CN-16L, use STB2-W replenisher pump.

Power PCB 2 (J391284) [SM]



Unused

Unused depending on the conditions

G075612

NOTE

- Power PCB 2 (J391002) is not supported by RoHS.

Function

- Controls each electrical part of the processor section.
- Supplies the DC power to each PCB.

Adjustments and precautions for PCB replacement

1. Position

☞ 6201

2. Precautions for replacement

- None

3. Adjustment after replacement

- None

Unused connector

Connector No.	Purpose	Remarks
P79	Unused	
P90	For drive power supply unit	Option

Component parts table

LED No.	Purpose	Status
LED1	DC+24 V input check	ON when supplying the power
LED2	DC+24 V–1 input check	ON when supplying the power
LED3	DC+24 V–2 input check	ON when supplying the power
LED4	DC+24 V–3 input check	ON when supplying the power
LED5	DC+24 V–4 input check	ON when supplying the power
LED6	DC+24 V–5 input check	ON when supplying the power
LED7	DC+5 V input check	ON when supplying the power
LED8	DC+24 V–6 input check	ON when supplying the power
LED9	For checking the refilling water pump operation	The LED status during operation is shown in the appendix.*1
LED10		
LED11		
LED12	For checking the cleaning pump	ON during operation
LED13	For checking the circulation pump	ON during operation
LED14	For checking the waste solution detection	OFF when the waste solution is detected.
LED15	For checking the dryer heater relay (X15)	ON during operation
LED16	For checking the dryer fan	ON during operation
LED17	For checking the CD circulation pump cooling fan	ON during operation
LED19	For checking the exhaust fan	ON during operation
LED20	For checking the processing solution level	OFF when detecting the processing solution level lower limit
LED21	For checking the relay (X13) for the processing solution heater	OFF when detecting the processing solution lower limit or operating the safety thermostat
LED22	For checking the loading cover lock solenoid	ON during operation
LED23	For checking the pressure solenoid	ON during operation
LED24	For checking the magnetic solenoid valve	ON during operation
LED25	For checking the program timer	OFF during the program timer
LED26	For checking the CD-A replenisher pump	ON during operation
LED27	For checking the CD-B replenisher pump	ON during operation
LED28	For checking the CD-C replenisher pump	ON during operation
LED29	For checking the CD-W replenisher pump	ON during operation
LED30	For checking the BL replenisher pump	ON during operation
LED31	For checking the FIX replenisher pump	ON during operation
LED32	For checking the STB replenisher pump	ON during operation
LED33	For checking FIX-W replenisher pump	ON during operation
LED34	For checking STB-W replenisher pump	ON during operation
LED35	For checking the aeration pump	ON during operation
LED36	For checking the film rear end detection	ON when the film rear end is detected.

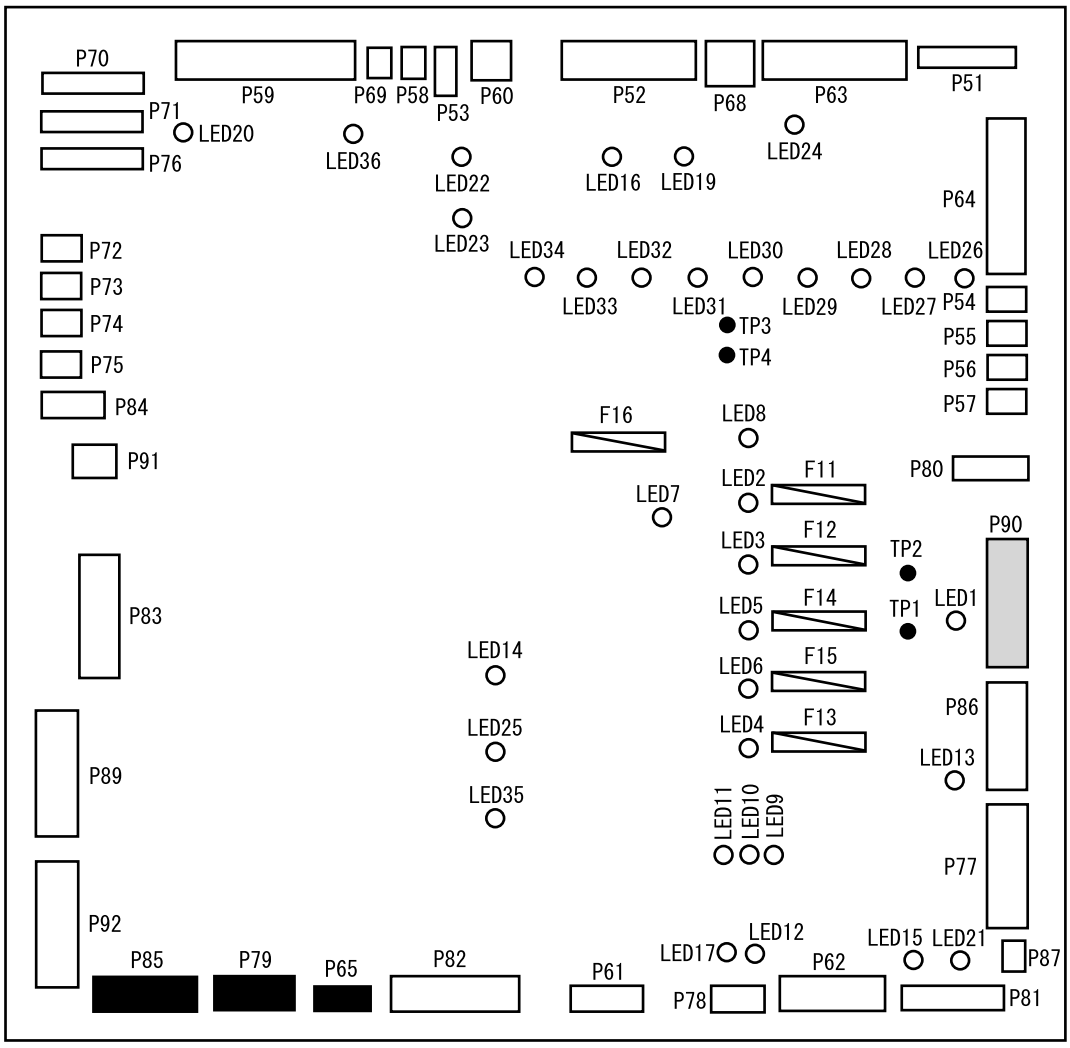
Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	For DC+24 V power supply and voltage measurement	Possible	
TP2	Ground	Possible	
TP3	For DC+5 V power supply and voltage measurement	Possible	
TP4	Ground	Possible	

Fuse No.	Rating	Purpose	Remarks
F11	T5 A/125 V	For protection of DC+24 V-1 input	
F12	T5 A/125 V	For protection of DC+24 V-2 input	
F13	T5 A/125 V	For protection of DC+24 V-3 input	
F14	T5 A/125 V	For protection of DC+24 V-4 input	
F15	T5 A/125 V	For protection of DC+24 V-5 input	
F16	T5 A/125 V	For protection of DC+24 V-6 input	

*1. Appendix (It is possible to check which pumps are operating by knowing the combination of ON status of LED9, 10 and 11.)

	BL–W Refilling water pump	FIX–W Refilling water pump	STB1–W Refilling water pump	STB2–W Refilling water pump
LED9	OFF	ON	ON	OFF
LED10	ON	ON	OFF	ON
LED11	OFF	OFF	ON	ON

Power PCB 2 (J391284) [F]



Unused

Unused depending on the conditions

G085876

Function

- Controls each electrical part of the processor section.
- Supplies the DC power to each PCB.

Adjustments and precautions for PCB replacement

1. Position

☞6201

2. Precautions for replacement

- None

3. Adjustment after replacement

- None

● Unused connector

Connector No.	Purpose	Remarks
P65	Unused	
P79	Unused	
P85	Unused	
P90	For drive power supply unit	Option

● Component parts table

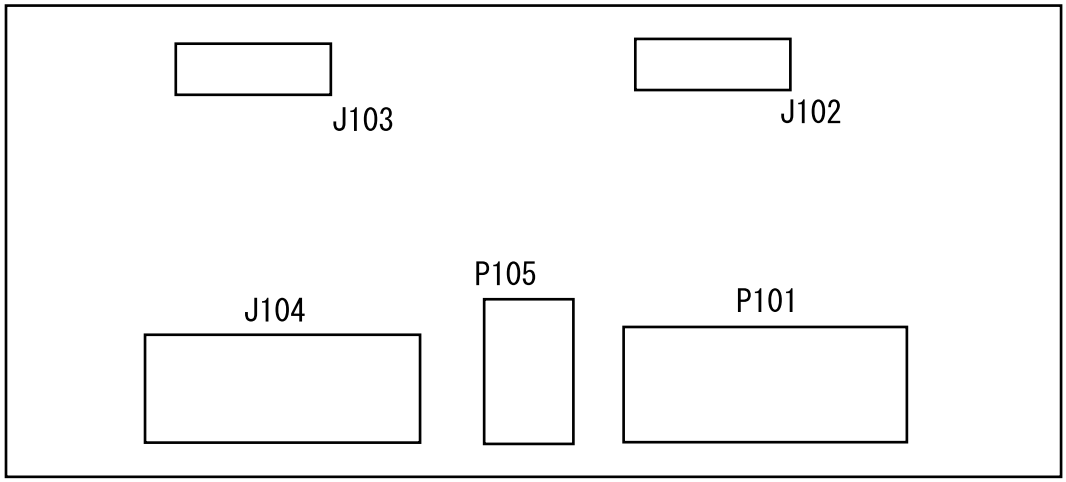
LED No.	Purpose	Status
LED1	DC+24 V input check	ON when supplying the power
LED2	DC+24 V–1 input check	ON when supplying the power
LED3	DC+24 V–2 input check	ON when supplying the power
LED4	DC+24 V–3 input check	ON when supplying the power
LED5	DC+24 V–4 input check	ON when supplying the power
LED6	DC+24 V–5 input check	ON when supplying the power
LED7	DC+5 V input check	ON when supplying the power
LED8	DC+24 V–6 input check	ON when supplying the power
LED9 to 12	Unused	
LED13	For checking the circulation pump	ON during operation
LED14	For checking the waste solution detection	OFF when the waste solution is detected.
LED15	For checking the dryer heater relay (X15)	ON during operation
LED16	For checking the dryer fan	ON during operation
LED17	For checking the CD circulation pump cooling fan	ON during operation
LED19	For checking the exhaust fan	ON during operation
LED20	For checking the processing solution level	OFF when detecting the processing solution level lower limit
LED21	For checking the relay (X13) for the processing solution heater	OFF when detecting the processing solution lower limit or operating the safety thermostat
LED22	For checking the loading cover lock solenoid	ON during operation
LED23	For checking the pressure solenoid	ON during operation
LED24	For checking the magnetic solenoid valve	ON during operation
LED25	For checking the program timer	OFF during the program timer
LED26	For checking N1RA replenisher pump	ON during operation
LED27	For checking N2R replenisher pump	ON during operation
LED28	For checking N3R replenisher pump	ON during operation
LED29	Unused	
LED30	For checking N1RB replenisher pump	ON during operation
LED31	For checking N4R replenisher pump	ON during operation
LED32	For checking N3W cascade replenisher pump	ON during operation
LED33	Unused	
LED34	Unused	
LED35	For checking the aeration pump	ON during operation
LED36	For checking the film rear end detection	ON when the film rear end is detected.

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	For DC+24 V power supply and voltage measurement	Possible	
TP2	Ground	Possible	

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP3	For DC+5 V power supply and voltage measurement	Possible	
TP4	Ground	Possible	

Fuse No.	Rating	Purpose	Remarks
F11	T5 A/125 V	For protection of DC+24 V-1 input	
F12	T5 A/125 V	For protection of DC+24 V-2 input	
F13	T5 A/125 V	For protection of DC+24 V-3 input	
F14	T5 A/125 V	For protection of DC+24 V-4 input	
F15	T5 A/125 V	For protection of DC+24 V-5 input	
F16	T5 A/125 V	For protection of DC+24 V-6 input	

Connecting PCB (J490373)



G075613

NOTE
- Connecting PCB (J490313) is not supported by RoHS.

Function

- Connecting of display, keyboard and buzzer

Adjustments and precautions for PCB replacement

1. Position

☞6201

2. Precautions for replacement

- None

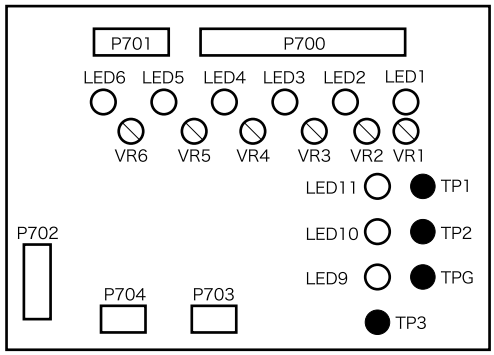
3. Adjustment after replacement

- None

Unused connector

- None

SM sensor PCB (J391299)



G075641

NOTE
- SM sensor PCB (J390623) is not supported by RoHS.

Function

- Signal connecting of the replenisher sensor
- Adjusting the sensitivity of the replenisher sensor

Adjustments and precautions for PCB replacement

1. Position

- ☞6201

2. Precautions for replacement

- None

3. Adjustment after replacement

- Calibrate the replenisher solution sensors. ☞2721

Unused connector

- None

Component parts table

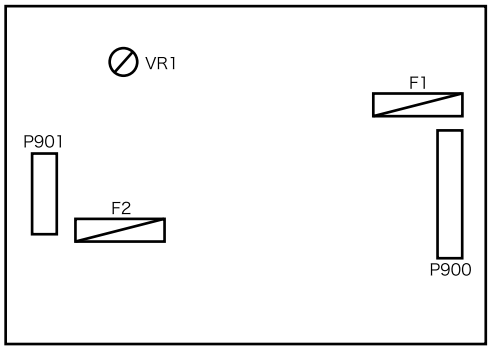
LED No.	Purpose	Remarks
1	For checking whether the replenishment solution (CD-B) is set or not.	ON when the replenishment solution is in.
2	For checking whether the replenishment solution (CD-A) is set or not.	
3	For checking whether the replenishment solution (STB) is set or not.	
4	For checking whether the replenishment solution (CD-C) is set or not.	
5	For checking whether the replenishment solution (FIX) is set or not	
6	For checking whether the replenishment solution (BL) is set or not.	
7	For checking whether the replenishment solution (F-1 replenishment package) is set or not.	ON when all the replenishment solutions in the package are set.
8	For checking whether the replenishment solution (F-2 replenishment package) is set or not.	

LED No.	Purpose	Remarks
9	DC+5 V input	ON when power is supplied.
10	DC+5 V input	
11	DC+24 V input	

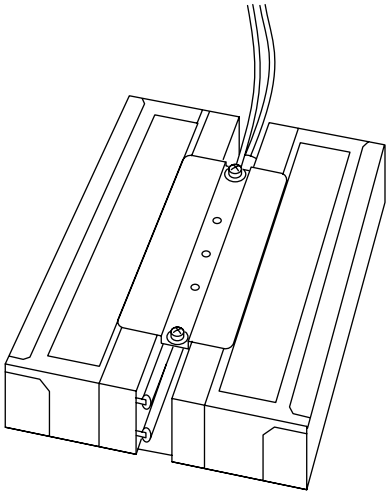
TP No.	Purpose	Measurement with voltmeter	Remarks
G	Ground		
1	For checking DC+5 V input voltage	Possible	
2	For checking DC+5 V input voltage	Possible	
3	For checking DC+24 V input voltage	Possible	

Backup PCB (J390972), Battery pack (I085024) (option)

Backup PCB



Battery pack



G075642

Layout diagram

- ☞6201

Function

- Supplys DC+24 V from the battery pack to power supply PCB 2 when the power supply (AC) to this machine stops.

  NOTE
  - When AC power supply is failed during processing, continue processing without turning the manual handle. Adjustment of the processing solution temperature and drying are not carried out.

- While the power supplied to this machine (at normal operation), the battery pack has been charged.

IMPORTANT

- Replacement period of the battery pack is about three years since its first use.
  The battery pack should be replaced with a new one within three years calculated from the date noted on the battery replacement label.
- If the battery pack is over discharged repeatedly, there is a case that it deteriorates within three years.
  When the driving is stopped before the processing film is ejected out the voltage check of the battery pack.
  When the battery has been deteriorated, replace the battery pack with a new one. Refer to ☞2501.

Adjustments and precautions for PCB replacement

1. Precautions for replacement

IMPORTANT

- When replacing the backup PCB, be sure to turn OFF not only the circuit breaker but also the drive switch.
- Disconnect the connector of J/P901 (battery pack) first.
- Do not connect the connector of J/P901 (battery pack) until the charged voltage is adjusted after the replacement.

2. Adjustment after replacement

- Adjust the charged voltage of the battery pack.
  1. Turn ON the circuit breaker without J/P901 (battery pack) connected.
  2. Measure the voltage between pin 1 and pin 2 of the connector (P901) at the PCB side.
  3. Turn VR1 to adjust the output voltage to 27.3±0.1 V.

- Connect the connector of J/P901 (battery pack).

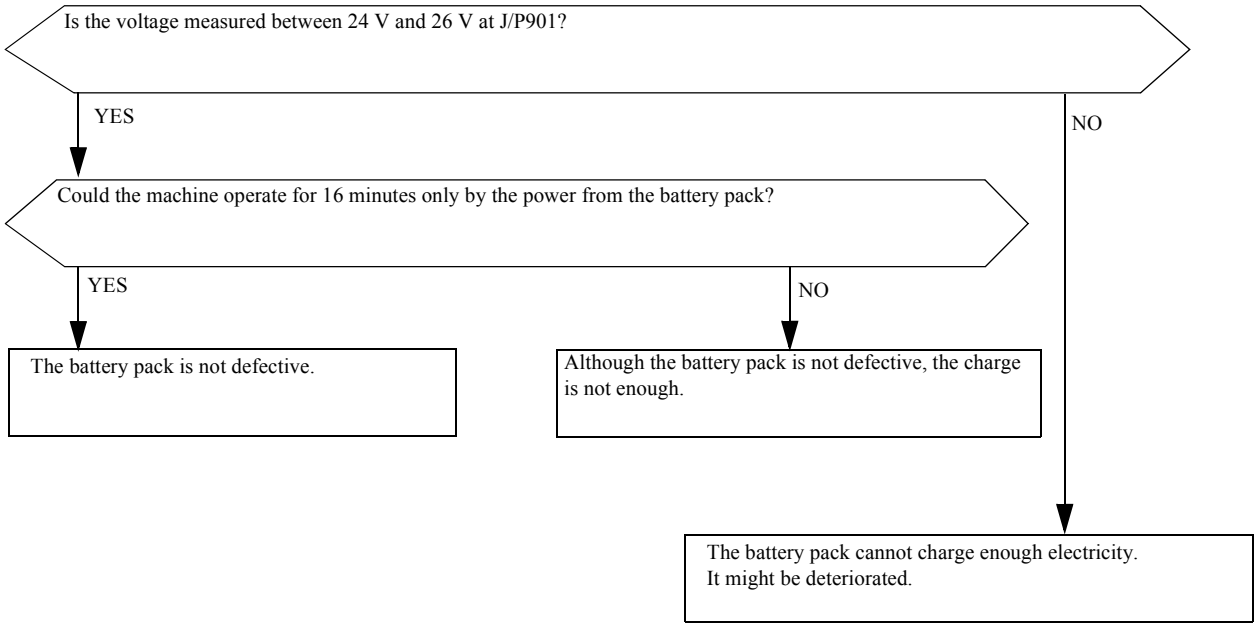
3. Checking the voltage of the battery pack

IMPORTANT

- For the battery pack voltage check, be sure to measure the buttery when the machine is driving by the battery. As the measured voltage of the battery pack out of operation differs from that in operation, the battery deterioration cannot be judged.
- For the voltage check of the battery pack, it requires to be charged for 12 hours or more.

Procedure

1. Turn OFF the circuit breaker, turn ON the drive switch and drive the machine by the power supply from the battery pack.
2. Measure the voltage between pin 1 and pin 2 of the connector of J/P901 (battery pack).
3. Diagnose by following the chart.


Is the voltage measured between 24 V and 26 V at J/P901?
YES
NO
Could the machine operate for 16 minutes only by the power from the battery pack?
YES
NO
The battery pack is not defective.
Although the battery pack is not defective, the charge is not enough.
The battery pack cannot charge enough electricity.
It might be deteriorated.

4. When the insufficient charge on the battery pack and its deterioration are diagnosed, check whether the charging function of the backup PCB is correct.
   1. Turn OFF the drive switch and disconnect the connector of J/P901 (battery pack).
   2. Turn on the circuit breaker.
   3. Measure the voltage between pin 1 to pin 2 of the connector (P901) in the PCB side and check that 27.3±0.1 V is output.
      - When 27.3±0.1 V is output
        Battery pack is deteriorated. Replace the battery pack with a new one.
      - When the voltage is not 27.3±0.1 V
        ☞ Adjust the charged voltage of the battery pack.

        NOTE
        - When the voltage does not appear or the charged voltage is not be adjusted, replace the backup PCB.

Unused connector

- None

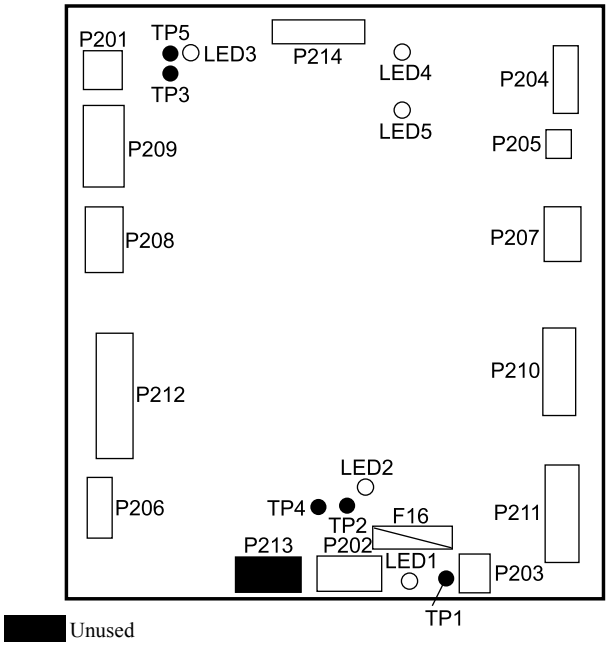
Component parts table

Volume No.	Purpose	Remarks
VR1	Adjustment of the charged voltage to the battery pack	27.3±0.1 V

Fuse No.	Rating	Purpose	Remarks
F1	T2A / 250 V	For the protection of PCB circuit	

Fuse No.	Rating	Purpose	Remarks
F2	T6.3 A/250 V	For the protection of the battery pack	

F replenishment (J391323)



G085871

Function

- Motor control of the F replenisher unit
- Solenoid valve control of the F replenisher unit
- Solution level detection of the replenisher tank
- Interlock control of the F replenisher unit

Adjustments and precautions for PCB replacement

1. Position

- ☞6201

2. Precautions for replacement

- None

3. Adjustment after replacement

- None

Unused connector

Connector No.	Purpose	Remarks
P213	Unused	

Component parts table

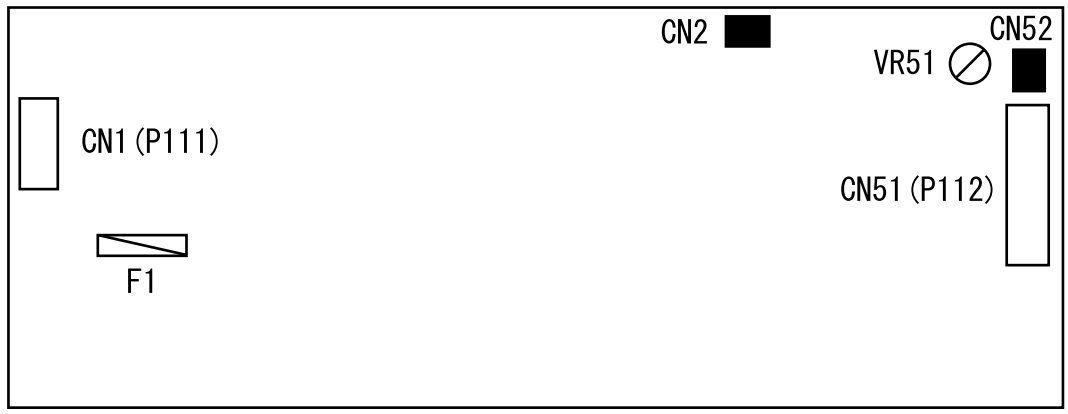
LED No.	Purpose	Status
LED1	For checking the status of the waste solution tank	Turning OFF when detecting the effluent level sensor
LED2	DC+24 V input check	ON during supplying the power
LED3	DC+5 V input check	ON during supplying the power

LED No.	Purpose	Status
LED4	ON/OFF checks for interlock switches (Replenisher section door 1)	ON: turning on OFF: turning off
LED5	ON/OFF checks for interlock switches (Replenisher section door 2)	ON: turning on OFF: turning off

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	DC+24 V voltage measurement	Possible	
TP2	DC+24 V voltage measurement	Possible	
TP3	DC+5 V voltage measurement	Possible	
TP4	Ground	Possible	
TP5	Ground	Possible	

Fuse No.	Rating	Purpose	Remarks
F16	T5 A/250 V	PCB protection	

DC power supply



Unused

G075614

● Function

- Supplys the power to the main control PCB and power PCB 2. (DC+24 V)

IMPORTANT

- The overcurrent protection function is equipped. If this function is operated, turn OFF the circuit breaker of the machine once and wait one moment, then turn it ON again.

● Adjustments and precautions for PCB replacement

● 1. Position

☞6201

● 2. Precautions for replacement

- None

IMPORTANT

- Do not touch the volume which had been adjusted by the manufacturer before the shipment.

● 3. Adjustment after replacement

- None

● Unused connector

Connector No.	Purpose	Remarks
CN2	Unused	
CN52	Unused	

● Component parts table

Fuse No.	Purpose	Remarks
F1	Protection of AC 200 V power supply input	Replacement is not available.

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7. Setup for service personnel

Setup at installation 7011
Setup at installation [N] [SM] 7011
Setup at installation [F] 7011

Setup at installation [N] [SM]

Description for each specification

The described section is different depending on the specifications. See below for the description for each specification.

- For F specification, refer to ☞ Setup at installation [F].

● Steps

1. Preparation of the tools for the setup

Prepare the following tools before setup at installation.

- Service personnel floppy disk Type B
- Floppy disk for data backup

NOTE

- The service personnel floppy disk Type B is the service personnel tools. Refer to **Service personnel tool list**.

2. Entering the service personnel password

Insert the service personnel floppy disk into the floppy disk drive and enter the service personnel password on the **MAIN MENU** display. ☞ 3022

(1) Press the **MODE** key on the **READY** display to bring up the **MIN MENU** display.

(2) Insert the service personnel floppy disk into the floppy disk drive.

(3) Enter the password **SHIFT** + − + **YES**.
When it is in service mode, **S** is displayed in the upper right on each display.

3. READING DATA

Read the system data from the floppy disk. ☞ 3091

Bringing up the display

MAIN MENU → FLOPPY/STANDARD SETTING → READING/WRITING

4. Confirming of the process specification of processor

Check whether it is set to the process specification to be used and change the setting if necessary. ☞ 3111

Bringing up the display

MAIN MENU → FLOPPY/STANDARD SETTING → STANDARD SETTING 1 → PROCESS SPECIFICATION

5. Processing temperature check

Check the processing solution and the processing temperature of dryer. Refer to **Operator's Manual - for administrator -**.

Bringing up the display

MAIN MENU → TEMPERATURE → SOLUTION TEMP. SETTING

6. Replenishment amount check

Carry out Replenishment Amount Check. Refer to **Operator's Manual - for administrator -**.

Bringing up the display

MAIN MENU → REPLENISH./REFIL.WATER → Supply

7. Refill amount check

Carry out Refill Amount Check. Refer to **Operator's Manual - for administrator -**.

Bringing up the display

MAIN MENU → REPLENISH./REFIL.WATER → REFILLING WATER

8. Carry out the initial replenishment operation

Carry out the air exhausting of the replenishment pumps and hoses so that the replenisher solution is output properly in the correct amount.

NOTE

- Carry out the initial replenishment operation with the pump amount measurement mode.

Bringing up the display

MAIN MENU → REPLENISH./REFIL.WATER → Supply → PUMP AMOUNT MEASUREMENT

9. Pump amount check and setting

Measure the pump amount of the replenisher pump and register the measured value in the pump amount setting mode. Refer to **Operator's Manual - for administrator -**.

Bringing up the display

MAIN MENU → REPLENISH./REFIL.WATER → Supply

10. Setting of the present date and time

Set the present date and time. Refer to **Operator's Manual - for administrator -**.

Bringing up the display

MAIN MENU → Program timer → DATE AND TIME SETTING

11. Setting of the program timer

Set the program timer. Refer to **Operator's Manual - for administrator -**.

Bringing up the display

MAIN MENU → Program timer → PROGRAM TIMER SETTING

12. Data writing.

Save the setting data of the machine to a floppy disk. ☞ 3091

Bringing up the display

MAIN MENU → FLOPPY/STANDARD SETTING → READING/WRITING

13. BL aeration amount check

Check the aeration amount in the BL sub-tank.
This operation is not necessary for **FS** specification.

IMPORTANT

- Aeration amount is set at maximum at the shipment.
- Too much aeration amount may cause the contamination.
- Aeration amount may fluctuate for one week after the installation. Give an instruction to the user to check the aeration amount every day. After the first one week passed, carry out the check of the aeration section once a month.
  Refer to **Operator's Manual 4.6.6 Checking of BL aeration**.

14. Carry out the advance test of the leader card

(1) Process three leader cards.
Confirm that no abnormality is found on the leader cards which are ejected from the dryer section.

(2) Process some new films.
Check that no fog, scratch, etc. are found on the processed film.

Setup at installation [F]

Description for each specification

The described section is different depending on the specifications. See below for the description for each specification.

- For N and SM specifications, refer to ☞ Setup at installation [N] [SM].

● Steps

1. Preparation of the tools for the setup

Prepare the following tools before setup at installation.

- Service personnel floppy disk Type B
- Floppy disk for data backup

NOTE

- The service personnel floppy disk Type B is the service personnel tools. Refer to **Service personnel tool list**.

2. Entering the service personnel password

Insert the service personnel floppy disk into the floppy disk drive and enter the service personnel password on the **MAIN MENU** display. ☞ 3022

(1) Press the **MODE** key on the **READY** display to bring up the **MAIN MENU** display.

(2) Insert the service personnel floppy disk into the floppy disk drive.

(3) Enter the password **SHIFT** + − + **YES**.
When it is in service mode, **S** is displayed in the upper right on each display.

3. READING DATA

Read the system data from the floppy disk. ☞ 3091

Bringing up the display

MAIN MENU → FLOPPY/STANDARD SETTING → READING/WRITING

4. Confirming of the process specification of processor

Check whether it is set to the process specification to be used and change the setting if necessary. ☞ 3111

Bringing up the display

MAIN MENU → FLOPPY/STANDARD SETTING → STANDARD SETTING 1 → PROCESS SPECIFICATION

5. Processing temperature check

Check the processing solution and the processing temperature of dryer. Refer to **Operator's Manual - for administrator -**.

Bringing up the display

MAIN MENU → TEMPERATURE → SOLUTION TEMP. SETTING

6. Supply data Initialization

Initialize the supply data.

Bringing up the display

MAIN MENU → FLOPPY/STANDARD SETTING → Data initialization

7. Auto mixing

Automatically open the cleaning valve for a specified time, remove the air in the cleaning pumps and replenisher pumps, and mix water and replenishment solution. ☞3164

Bringing up the display

MAIN MENU → Replenishment/refill water → Setting operation → Auto mixing

8. Pump amount check and setting

Measure the pump amount of the replenisher pump and register the measured value in the pump amount setting mode. ☞3161

Bringing up the display

MAIN MENU → Replenishment/refill water → Supply

9. Setting the operation mode

Turn on **AUTO WATER REFILLING** and **ROOM CONDITION DETECT**. ☞3165

Bringing up the display

MAIN MENU → Replenishment/refill water → Operation Mode

10. Setting the environment condition

Set the room condition to **AUTO**. Refer to **Operator's Manual - for administrator -**.

Bringing up the display

MAIN MENU → Replenishment/refill water → Environmental condition

11. Setting of the present date and time

Set the present date and time. Refer to **Operator's Manual - for administrator -**.

Bringing up the display

MAIN MENU → Program timer → DATE AND TIME SETTING

12. Setting of the program timer

Set the program timer. Refer to **Operator's Manual - for administrator -**.

Bringing up the display

MAIN MENU → Program timer → PROGRAM TIMER SETTING

13. Data writing.

Save the setting data of the machine to a floppy disk. ☞3091

Bringing up the display

MAIN MENU → FLOPPY/STANDARD SETTING → READING/WRITING

14. BL aeration amount check

Check the aeration amount in the BL sub-tank.

IMPORTANT

- Aeration amount is set at maximum at the shipment.
- Too much aeration amount may cause the contamination.
- Aeration amount may fluctuate for one week after the installation. Give an instruction to the user to check the aeration amount every day. After the first one week passed, carry out the check of the aeration section once a month.
  Refer to **Operator's Manual 4.6.6 Checking of BL aeration**.

15. Carry out the advance test of the leader card

(1) Process three leader cards.
Confirm that no abnormality is found on the leader cards which are ejected from the dryer section.

(2) Process some new films.
Check that no fog, scratch, etc. are found on the processed film.

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8. Appendix

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List of Maintenance/Periodically Replaced Parts/Consumable Parts [N] 8011
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Condition list for check/replacement timing (service personnel) [SM] 8011
Condition list for check/replacement timing (service personnel) [F] 8011
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Table of wiring diagrams 8900

List of Maintenance/Periodically Replaced Parts/Consumable Parts [N]

Description for each specification

Some of this section are different from [SM] and [F] specification depending on the machine specification. For the different points, refer to the following.

- For SM specification, refer to ☞ List of Maintenance/Periodically Replaced Parts/Consumable Parts [SM].
- For F specification, refer to ☞ List of Maintenance/Periodically Replaced Parts/Consumable Parts [F].

The list below shows the checks and replacement of parts that need to be performed regularly by user and service personnel to keep the normal system operation.
Check the actual processing hours and number of film rolls by the hour meter and the counter.

IMPORTANT

- For the maintenance parts, regularly check them and replace them if necessary.
  Some parts need replacing according to the processing time or the number of developed rolls. The replacement timing varies depending on the operating condition of the system.
  Since the replacement timing is the rough standard, you do not always have to replace the parts on the specified timing.
- As to the periodically replaced parts, replace the parts when the processing time or number of rolls reaches the specified value regardless of the condition of the parts.
- The numerical values described below do not indicate warranty periods.

NOTE

- The hour meter and the counter are options.

● List for maintenance

For the procedure of maintenance by users, refer to the **Operator's Manual - for operator -**.

● Upper turn guide section, Squeegee rack section

Parts or checking items	U/S	Maintenance contents	Part No.	Timing	Standard replacement timing	Quantity	Remarks
Upper turn guides 1 and 2	U	Automatic cleaning at every close down checks.	-	Close down	-	-	-
Squeegee rack	U	After cleaning with running water, soak it in a vat filled with water.					
Squeegee rack	U	Drain it off and reattach it.	-	Start up	-	-	-
Cleaning the inlet guide	U	Clean it with running lukewarm water. After that, dry it up and reattach it as it was.	-	1 week	-	-	Perform it at the close down checks on the day for the weekly regular checks.
Cleaning the squeegee rack	U	Clean it with running lukewarm water. Then soak it in a vat filled with water.					
Cleaning upper turn guides 1 and 2	U	Clean them with running lukewarm water. After that, wipe them up and reattach them as they were.					
Cleaning and checking the inlet guide, upper turn guides 1 and 2, and the squeegee rack	U	Clean them using a soft sponge with running lukewarm water. Then check if those are damaged or worn.	-	1 month	-	-	-

Parts or checking items	U/S	Maintenance contents	Part No.	Timing	Standard replacement timing	Quantity	Remarks
Squeegee inlet roller assembly	S	Check if they are damaged or worn. If it is damaged or worn, replace it with a new one. Check it every six months after two years has passed since the installation and replace it with a new one if necessary.	A077435	2 year	2 year	1	Maintenance parts
Squeegee roller	S		A076578			5	
Upper turn roller	S		A076580			15	
Gear sleeve	S	Check if they are damaged or worn. If it is damaged or worn, replace it with a new one. Check it every six months after three years has passed since the installation and replace it with a new one, if necessary.	A060032	3 year	9000 hours	1	Maintenance parts For standard replacement timing, replace it about every three years considering that it works ten hours per day.
Release gear	S		A060033			1	
Spring flange	S		A060034			1	
Squeegee gear	S		A076898			8	
Counter gear	S		A220173			1	

U: User, S: Service personnel

- **Processing rack section**

Parts or checking items	U/S	Maintenance contents	Part No.	Timing	Standard replacement timing	Quantity	Remarks
Processing racks (No. 1 to 7)	U	Wash away the crystals of the processing solutions at and around the exit roller using a washing bottle.	-	1 week	-	-	-
Processing racks (No. 1 to 7)	U	Wash it using a soft sponge with running lukewarm water so that crystals are dissolved.	-	1 month	-	-	-
Rack bushing	S	Check if they are damaged or worn. If it is damaged or worn, replace it with a new one. Check it every six months after three years has passed since the installation and replace it with a new one, if necessary.	A128559	3 year	9000 hours	44	Maintenance parts For standard replacement timing, replace it about every three years considering that it works ten hours per day.
Squeegee bushing	S		A206141			6	
Squeegee bushing	S		A235343			8	
Feed gear (28T)	S		A219797			7	
Feed gear (20T)	S		A219803			25	
Idle gear (28T)	S		A219805			12	
Idle gear (18T)	S		A219847			10	
Squeegee drive gear (30T)	S		A219810			7	
Squeegee roller gear	S		A121782			8	
Squeegee roller gear	S		A206147			6	
Squeegee idle gear (a)	S		A121772			7	
Drive gear	S		A076899			7	

U: User, S: Service personnel

Frame section

Parts or checking items	U/S	Maintenance contents	Part No.	Timing	Standard replacement timing	Quantity	Remarks
Effluent tank	U	Collect the waste solution.	-	Close down If needed	-	-	-
Automatic cleaning pipe	U	Check whether or not crystals stick on the opening of the automatic cleaning pipe. If necessary, remove the pipe and wash it with such as a toothbrush.	-	2 week	-	-	-
Filter cartridge	U	Check whether it is clogged or deformed. In that case, replace it with a new one.	H029049	2 week	2 week	7	-
Cleaning the air filter	U	Vacuum the dust using a vacuum cleaner at the dust accumulated side. If the dirt cannot be removed, turn the side with dust down and wash it with running water.	-	1 month	-	-	-
Aeration	U	If the bubbles of aeration come out from the gap of the tank cover, adjust the valve.	-	1 month	-	-	-
Float switch	U	Push and sink the upper of the float with a stick and check that the float moves up and down.	-	3 month	-	-	-
Cleaning the processing solution tanks	U	Wash it using a brush with water.	-	1 year	-	-	-

U: User, S: Service personnel

Replenisher section [N]

Parts or checking items	U/S	Maintenance contents	Part No.	Timing	Standard replacement timing	Quantity	Remarks
Refilling water and water supply tanks	U	Check the water amount.	-	Close down	-	-	-
Washing the replenisher pump strainer	U	Wash it with water. (Replace it with a new one when it has been seriously damaged.)	H056009	1 month	1 year	5	Maintenance parts CN-16L *1
						4	Maintenance parts Except above *1
Poppet valve	S	Check whether it is damaged. If it is damaged, replace it with a new one. Check it every six months after three years has passed since the installation and replace it with a new one, if necessary.	I091040	3 year	3 year	2	Maintenance parts Fluorocarbon rubber CN-16 *1
			I091003			8	Maintenance parts EPDM *1

*1. The quantity is different from [N] specification for other specifications.

U: User, S: Service personnel

- **Dryer rack section**

Parts or checking items	U/S	Maintenance contents	Part No.	Timing	Standard replacement timing	Quantity	Remarks
Checking and cleaning the dryer rack	U	Check if there are any dirt or damage on each part. If the roller is dirt, wipe it using the firmly squeezed damp cloth.	-	1 month	-	-	-
Dryer drive chain	U	Lubricate the lubricating felt.	-	6 month	-	-	-
Dryer drive chain	S	When the frequency of traces which the sprocket makes on the leader card increases, replace it. Check it every six months after three years has passed since the installation and replace it with a new one, if necessary.	H010378	3 year	3 year	1	Maintenance parts
Center roller bushing	S	Check if they are damaged or worn. If it is damaged or worn, replace it with a new one. Check it every six months after three years has passed since the installation and replace it with a new one, if necessary.	A006105	3 year	9000 hours	1	Maintenance parts
Bushing	S		A029596			2	
Center roller bushing (small)	S		A118161			11	
Drive gear (Exit roller)	S		A063236			2	
Dryer drive gear	S		A077367			1	
Dryer exit roller unit	S	Check its dirt and damage. If it is dirt or damaged , replace it with a new one. Check it every six months after three years has passed since the installation and replace it with a new one, if necessary.	A077702	3 year	3 year	2	Maintenance parts

U: User, S: Service personnel

- **Dryer main section**

Parts or checking items	U/S	Maintenance contents	Part No.	Timing	Standard replacement timing	Quantity	Remarks
Cleaning the air filter	U	Vacuum the dust using a vacuum cleaner at the dust accumulated side. If the dirt cannot be removed, turn the side with dust down and wash it with running water.	-	1 month	-	-	Replace it when it has been seriously damaged.

U: User, S: Service personnel

- **Film stocker unit**

Parts or checking items	U/S	Maintenance contents	Part No.	Timing	Standard replacement timing	Quantity	Remarks
Cleaning the film stocker	U	Clean using the cleaner, etc.	-	If needed	-	-	-

U: User, S: Service personnel

- **Control box section**

Parts or checking items	U/S	Maintenance contents	Part No.	Timing	Standard replacement timing	Quantity	Remarks
Cleaning the floppy disk drive	U	Clean it using the commercially available cleaning floppy disk.	-	If needed	-	-	-
Cleaning the air filter	U	Vacuum the dust using a vacuum cleaner at the dust accumulated side. If the dirt cannot be removed, turn the side with dust down and wash it with running water.	-	1 month	-	-	Replace it when it has been seriously damaged.

U: User, S: Service personnel

- **Option**

Parts or checking items	U/S	Maintenance contents	Part No.	Timing	Standard replacement timing	Quantity	Remarks
Cleaning Y-type strainer (cooling water pluming unit)	U	Clean it using a toothbrush with running water.	-	1 month	-	-	-

U: User, S: Service personnel

- **Others**

Parts or checking items	U/S	Maintenance contents	Part No.	Timing	Standard replacement timing	Quantity	Remarks
Leader card (135)	U	Replace it when a perforation is protruded with approx. 1.5 mm.	A077059	If needed	300 times	-	Replace it when it has been seriously damaged.
Leader card (IX240)	U	Replace it when a perforation is protruded with approx. 1.5 mm.	A077061				

U: User, S: Service personnel

● List of periodically replaced parts

- **Option**

Part name	U/S	Part No.	Quantity	Recommended timing of replacement	Remarks
Battery pack	S	I085024	3	3 year	For drive power supply unit

U: User, S: Service personnel

● List of consumable parts

Part name	U/S	Part No.	Quantity	Supposed consumption value	Remarks
Splicing tape	U	A662421	1		135
Splicing tape (110)	U	A108695	1		110
Check label	U	H069025	1		TB-K2 Line blue

Part name	U/S	Part No.	Quantity	Supposed consumption value	Remarks
Check label	U	H069026	1		TG-K2 Line green
Check label	U	H069027	1		TK-K2 Line black
Check label	U	H069028	1		TR-K2 Line red
Check label	U	H069029	1		TS-K2 Line brown
Check label	U	H069030	1		TY-K2 Line yellow

List of Maintenance/Periodically Replaced Parts/Consumable Parts [SM]

Items which are different from [N] specification are mentioned in the following list. For the items which are not mentioned, refer to ☞ List of Maintenance/Periodically Replaced Parts/Consumable Parts [N].

● List for maintenance

For the procedure of maintenance by users, refer to **Maintenance Manual**.

● Replenisher section [SM]

Parts or checking items	U/S	Maintenance contents	Part No.	Timing	Standard replacement timing	Quantity	Remarks
Cleaning the probe	U	Clean with a damp dedicated cotton swab.	-	If needed	-	-	Perform it when replacing the replenishment package.
Cleaning of the probe holder	U		-				
Cleaning of the replenisher solution sensor	U		-				
Washing the replenisher pump strainer	U	Wash it with water. (Replace it with a new one when it has been seriously damaged.)	H056009	1 month	1 year	7 or 5*1	Maintenance parts
Poppet valve (other than STB)	S	Check whether it is damaged. If it is damaged, replace it with a new one. Check it every six months after three years has passed since the installation and replace it with a new one, if necessary.	I091040	3 year	3 year	10	Maintenance parts Fluorocarbon rubber
	S		I091003			8	Maintenance parts EPDM

U: User, S: Service personnel

*1. When diverged from one strainer to each water supply pump

● List of periodically replaced parts

● Replenisher section [SM]

Part name	U/S	Part No.	Quantity	Recommended timing of replacement	Remarks
Probe (2) assembly	S	A054659	1	1 year	Only CD-A
Probe (1) assembly	S	A054658	5	1 year	Other than CD-A

U: User, S: Service personnel

List of Maintenance/Periodically Replaced Parts/Consumable Parts [F]

Items which are different from [N] specification are mentioned in the following list. For the items which are not mentioned, refer to ☞ List of Maintenance/Periodically Replaced Parts/Consumable Parts [N].

● List for maintenance

For the procedure of maintenance by users, refer to **Maintenance Manual**.

● Replenisher section [F]

Parts or checking items	U/S	Maintenance contents	Part No.	Timing	Standard replacement timing	Quantity	Remarks
Nozzle	U	Confirm whether the nozzle is not clogged. If necessary, clean the nozzle with toothbrush or the like.	-	6 month	-	-	
Poppet valve (other than STB)	S	Check whether it is damaged. If it is damaged, replace it with a new one. Check it every six months after three years has passed since the installation and replace it with a new one, if necessary.	I091040	3 year	3 year	10	Maintenance parts Fluorocarbon rubber
	S		I091003			4	Maintenance parts EPDM

U: User, S: Service personnel

Condition list for check/replacement timing (service personnel) [N]

This is a list to check Maintenance parts/Periodically replaced parts arranged by the period for service personnel.

Description for each specification

The described section is different depending on the specifications. See below for the description for each specification.

- For SM specification, refer to ☞Condition list for check/replacement timing (service personnel) [SM].

● Every two years check

Unit	Parts or checking items	Remarks
☞Upper turn guide section, Squeegee rack section	Squeegee inlet roller assembly	
	Squeegee roller	
	Upper turn roller	

● Every three years check

Unit	Parts or checking items	Remarks
☞Upper turn guide section, Squeegee rack section	Gear sleeve	
	Release gear	
	Spring flange	
	Squeegee gear	
	Counter gear	
☞Processing rack section	Rack bushing	
	Squeegee bushing	
	Squeegee bushing	
	Feed gear (28T)	
	Feed gear (20T)	
	Idle gear (28T)	
	Idle gear (18T)	
	Squeegee drive gear (30T)	
	Squeegee roller gear	
	Squeegee roller gear	
	Squeegee idle gear (a)	
	Drive gear	
☞Replenisher section [N]	Poppet valve	
☞Dryer rack section	Dryer drive chain	
	Center roller bushing	
	Bushing	
	Center roller bushing (small)	
	Drive gear (Exit roller)	
	Dryer drive gear	
	Dryer exit roller unit	
☞Option	Battery pack	

Condition list for check/replacement timing (service personnel) [SM]

Items which are different from [N] specification are mentioned in the following list. For the items which are not mentioned, refer to ☞Condition list for check/replacement timing (service personnel) [N].

● Yearly Checks

Unit	Parts or checking items	Remarks
☞Replenisher section [SM]	Probe (2) assembly	Periodically replaced parts
	Probe (1) assembly	

● Every three years check

Unit	Parts or checking items	Remarks
☞Replenisher section [SM]	Poppet valve (other than STB)	

Condition list for check/replacement timing (service personnel) [F]

Items which are different from [N] specification are mentioned in the following list. For the items which are not mentioned, refer to ☞Condition list for check/replacement timing (service personnel) [N].

● Every three years check

Unit	Parts or checking items	Remarks
☞Replenisher section [F]	Poppet valve (other than STB)	

Service personnel tool list [N] [F]

Description for each specification

Some of this section are different from [SM] specification depending on the machine specification. For the different points, refer to the following.

- For SM specification, refer to ☞Service personnel tool list [SM].

Tool	Part No.	Explanation
Service personnel floppy disk	F000472-01	Used to enter the service personnel password.

Service personnel tool list [SM]

Items which are different from [N] specification are mentioned in the following list. For the items which are not mentioned, refer to ☞ Service personnel tool list [N] [F].

Tool	Part No.	Explanation
Air exhaust tool (hose type) assembly	A087220-01 (A050363-01)	Used when installing the SM specification and replacing the replenisher pump. (compatible with the conventional V series machines of SM specification) The part in parentheses is not supported by RoHS.
Probe replacing jig	A053235-01	Used when replacing the probe. (compatible with the conventional SM machines)

Table of wiring diagrams

Block No.	Item	Diagram No.	Remarks
FP 1-1	AC/DC power supply	J309092	
FP 1-2	DC power supply circuit diagram	J309336	
FP 2-1	Around power PCB 1	J309093	
FP 2-2	Around main control PCB	J309094	
FP 2-3	Around power PCB 2 (1)	J309095	
FP 2-3	Around power PCB 2 (1)	J310265	
FP 2-4	Around power PCB 2 (2)	J309096	
FP 2-4	Around power PCB 2 (2) [SM]	J309097	
FP 2-4	Around power PCB 2 (2)	J310222	
FP 2-5	Replenishment unit (SM specification)	J309098	
FP 2-6	F replenishment I/O PCB area	J310223	
FP 3-1	Power voltage detection section	J309337	
FP 3-2	Temperature control block (1)	J309338	
FP 3-3	Temperature control block (2)	J309339	
FP 3-4	Temperature control block (3)	J309340	
FP 3-5	Loading section	J309341	
FP 3-6	Drive section	J309342	
FP 3-7	Dryer main section	J309343	
FP 3-8	Replenisher section (1)	J309344	
FP 3-8	SM replenisher section (1) [SM]	J309347	
FP 3-9	Replenisher section (2)	J309345	
FP 3-9	SM replenisher section (2) [SM]	J309348	
FP 3-10	Refilling water section	J309346	
FP 3-10	Refilling water section[SM]	J309349	
FP 3-11	Water supply section [SM]	J309350	
FP 3-12	Waste solution block	J309351	
FP 3-13	Processor section	J309352	
FP 3-14	Optional section	J309353	
FP 3-15	F replenishment package unit	J310270	
FP 3-16	Replenisher section (1)	J310271	
FP 3-17	Replenisher section (2)	J310273	
FP 3-18	Replenisher section (3)	J310274	
FP 3-19	Replenisher section (4)	J310275	
FP 3-20	Replenisher section (5)	J310292	

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